

In Honor of Seymour Melman

A key figure amongst academics who have chosen to apply their approach to real world issues beyond the ivory tower in the United States is Seymour Melman, someone whose work should be discussed in every classroom in which current issues facing America are of concern.

Throughout his career Melman wrote some of the saddest texts imaginable, not only about what is happening in a world of “pentagon capitalism,” but what is happening elsewhere in society as a consequence of those actions. I always feel like crying when reading Melman’s writings, particularly his last book *After Capitalism*, a masterpiece that was virtually ignored (in part because it came out exactly when 9/11 occurred). When he died, he was working on new book, *War Inc.*, and I’m honored to have it as part of our growing *AmeriQuests* monograph series. For this, I’m grateful to Seymour himself, and to those who have worked so hard to bring this book to light, notably Ben Abrams and Patrick Deer, who edited the text. Jonathan Feldman has been an active promoter of Melman’s ideas, and both Marcus Raskin and Murray Eden have been crucial interlocutors and facilitators for this project.

There is so much to learn from all of Melman’s work, as is evident from even a small selection of his words: In a section entitled “the Human and Industrial Cost of Defense,” Melman offers a sense of the tasks that stand before those who wish to work beyond the ivory tower:

From 1990 to 2000, the United States government spent \$2,956 billion on the Department of Defense. This sum of staggering size (try to visualize even one billion of anything) does not express the cost of the military establishment to the nation as a whole. The true cost is measured by the “opportunity cost”, by what has been foregone, by the accumulated deterioration in many facets of life, by the inability to alleviate human wretchedness of long duration.

Here is part of the human inventory of depletion:

1. By 2001, huge numbers of US homes were decaying. 2 million homes have severe physical problems. 13 million have leaks from outside the structure. 1 million homes have holes in their floors. 1 million homes are infested with rats. 72,000 homes have no electricity.
2. In 2002, 9.3 million people in the US were classified as “hungry” by the U.S. Department of Agriculture. Furthermore, almost 35 million people -- 12.5 percent of U.S. households -- had no secure supply of food, due to lack of resources.
3. In 2002, 34.8 million people in the US lived in poverty. This is 12.4 percent of the population, and an increase of 1.4 million from 2001.
4. 2.3-3.5 million people (including 1.3 million children) in the U.S. experience homelessness each year.
5. 41.2 million people in the U.S. lacked health insurance during the entire year 2001. In 2002, 18,000 uninsured Americans died due to lack of treatment.

6. 14 million children go to class in deteriorating public schools. Two thirds of all public schools have troublesome environmental conditions

The human cost of military priority is paralleled by the depletion of industrial technology caused by the concentration of manpower and capital on military technology and in military industry. For example:

1. In 1996, over 60% of the machine tools used in US industry were 11 + years old.
2. Congestion of roads causes 5.7 billion hours of delay in the U.S. each year. This is equivalent to 650,684 years of time wasted.
3. U.S. railways have become antiquated. Now the electrification of 60,000 miles of track is required before the US can use the modern, fast and efficient trains that exist in other countries.

As civilian industrial technology deteriorates or fails to advance, productive employment opportunity for Americans diminishes.

To carry out the role that Melman as an industrial engineer assigned to himself, he as an intellectual had to be “engaged,” in the Sartrian sense of *engagé*, in issues of the day, and to do so he had to be willing to extend the scope of his work by speaking out and taking risks in the real world. As an engineer, he had long experience from which to draw, and as a deeply humane person, he measured each policy and each approach against a human scale. His engagement shows us what can be done within and beyond the ivory tower, and his uncompromising insistence that each decision in both realms be judged by standards of decency and effect offer us a sense of what can come from careful and reasoned research.

The problem is that so many contemporary intellectuals come to be seduced, or “bewitched”, by ideologies or methodologies which in their implications can be murderous even if their ambitions seem lofty, and it’s amazing that people like Seymour Melman managed to remain engaged while keeping away from such sectarian quick fixes. In his controversial *The Opium of the Intellectuals*, Paul Aron berated those who mercilessly attack the failings of contemporary democracies while providing intellectual asylum for those who support the “proper” doctrines; we need to recall this kind of courage, and can do so with reference to books like *War Inc.*

Seymour Melman’s words offer us grounds for hope that we really can address contemporary problems through careful and often pragmatic examination of the world we occupy, in this case from the perspective of the United States, and this book points to the kinds of debates with which we ought to be involved, particularly in an election year, when so much is at stake in terms of what can be gained, and what forever lost. This is not to say that we can hope that candidates will really engage these issues, lobbying and personal power have always had the final say; but readers of this text can insist that these concerns be raised and raised again, so that each decision made and policy put forth can be measured against its real implications, not only in terms of what is likely to occur, but what could happen otherwise, if the legislation is effected in some other way. We are forever hearing from teachers, politicians and policy makers at all levels that “utopian thinking” is to be shunned. I disagree, because we really can do better, we can demand more, and we can dream of a better future for ourselves and for our children. This book is utopian thinking at its very best, it seems to me, and we ought to be fighting for it rather than giving in to the non-

choices of resource depletion and murder that have become the gold standards in our domestic and international legislation.

Robert F. Barsky, Editor

AmeriQuests

Editors' Foreword to *War Inc.*

In *War Inc.* Seymour Melman sought to introduce a new generation of readers to his lifelong critique of the operation of the war economy in the United States, and the ongoing process of deindustrialization that has destroyed much of America's once formidable manufacturing industries. Aimed at a wide variety of readers, the book draws on and synthesizes Professor Melman's prior research and books, especially *Pentagon Capitalism*, *The Permanent War Economy*, and *Our Depleted Society*. It also extends some of the arguments and research of his major 2001 study, *After Capitalism: From Managerialism to Workplace Democracy*.

After Professor Melman's death the responsibility and privilege of completing the editing of the manuscript came to us. Ben Abrams worked with Professor Melman throughout the process of creating *War Inc.* as his research assistant. As editor of *After Capitalism* and former research assistant, Patrick Deer was also familiar with the project's design and intentions. Our work included restructuring of the chapters and in some cases reordering of material. The phrasing of some sentences has been changed in order to clarify their meaning, however, we attempted to remain faithful to the book's spirit and design and sought to preserve the style and tone of the original throughout. The current edition also includes a biographical Afterword by Jonathan Feldman, which places the book in the wider trajectory of Seymour Melman's career.

The manuscripts of *War Inc.*, along with sections of Seymour Melman's unfinished memoir, *I Did Not Change My Mind*, may be found with the rest of his papers in the Rare Books and Manuscripts Library at Columbia University: http://www.columbia.edu/cu/lweb/archival/collections/ldpd_4079724/index.html. Readers interested in following up on the book's arguments and on current initiatives on economic conversion and reindustrialization should also visit the Economic Reconstruction website at: www.economicreconstruction.com.

As editors, we aimed to keep *War Inc.* as close to Professor Melman's original intent: to produce a book aiming at the widest possible readership, intervening in a wartorn present, and offering, in workplace democracy, economic conversion and reindustrialization, a vision of an alternative future. The book has already found an international readership through its Italian translation as *Guerra SpA: L'economia militare e il declino degli Stati Uniti* (Città Aperta Edizioni, 2006). Though *War Inc.* was written in 2003-2004, the issues that it presents continue to command urgent attention today. Deindustrialization and war economy continue to degrade the material basis for the lives of countless ordinary citizens.

Ben Abrams

Patrick Deer

New York City, 2007

War Inc.

by Seymour Melman

Edited by Ben Abrams and Patrick Deer

Preface

Ben Abrams (CC'99) has contributed to every phase of the research and text preparation of this book. The substantial assembly of endnotes that accompanies the text will surely facilitate further work on the topics treated here by journalists, students and others. *Ernest Fitzgerald* and *Dina Rasor* have drawn on their long, professional experience in military economy to make possible solid portrayal of key aspects of life in the world of the Pentagon. I owe warm thanks to *Dr. Greg Bischak* for his important assessment of the prospective employment and income effects from a major effort to upgrade American infrastructure. His report, (Appendix A) will also serve as a model for similar studies and as a major spur to carry on the repair and upgrading of U.S. infrastructure. *Professor John. E. Ullmann* applied the results of his long monitoring of railroad technology and economy to supplying crucial data on the role of railroads in U.S. infrastructure.

Tom Boucher's research notes on the machine tool industry of China helped to illuminate the treatment of the very important China factor in the future of American industry. I extend special thanks to the managers of Haas Automation , Inc. and Mazak (USA) Inc.. for giving generous access to the data of their firms that made possible the portrayal of aspects of their operations. *Dr. Jonathan Feldman* has drawn upon his long experience including many original research papers in the field of conversion from military to civilian economy and has recommended important parts of the bibliography on economic conversion that appears in this book. *Dr. Jon Rynn* has contributed his valuable economic analyses to the text.

Marc Karasu encouraged attention to modes of statement designed to make the specialized analyses of this book accessible to the general reader, and I am grateful for similar contributions from *Josh Hersh* (CC'04). *Professor Murray Eden* generously applied his considerable editorial talents to rendering the text to be far more readable, and hence more accessible to the general reader. The formatting of this book has benefited from the generous comments from *Junie Lee* and *Sandy Kaufman* at Columbia's Office of University Publications. *Bob Gill* has contributed his considerable talents to this project by designing the cover artwork.

Jim Haughton generously took time out from his responsibilities at Harlem Fight-Back to encourage the preparation and publication of War, Inc. Professor *Marcus Raskin*, a longtime colleague in the War / Peace Arena, has, by example, offered a sustaining model for politically meaningful inquiry.

My warm thanks to you all!

Seymour Melman

Introduction: America's Permanent War Economy

The Pentagon Loses \$2,300,000,000,000

On September 10th, 2001, Secretary of Defense Donald H. Rumsfeld made a stunning announcement. "...we cannot track \$2.3 trillion in transactions ..." ¹In the realm of business, with its emphasis on profit maximizing, such looseness in accounting would either be evidence of monumental incompetence or deliberate falsification.

But not in the Pentagon. For there, the dominant measure of success is gain in power, the ability to control the behavior of groups of people, even whole nations. When it comes to maximizing power, monetary efficiency often comes second. Thus it appears to be normal for Pentagon managers to treat the inability to match payments made with goods or services received as a mere inconvenience that may be brushed off as so much "budget dust". * Magnitudes such as 2.3 trillion, while ordinary in astronomy are unusual in economy. Note that \$2.3 trillion exceeds the net value of the entire plant and equipment of U.S. manufacturing industries, currently measured as \$1.8 trillion. ²

The Pentagon managers' loss of \$2.3 trillion has a far greater significance than as a mere exhibition of trashy administration. The U.S. is now in the grip of a highly militarized form of state-capitalism that was gradually installed during the half century of Cold War (as I will discuss in Chapters 1 & 2). Without formal announcement or debate, this development has spurred the deindustrialization of the U.S. (see Chapter 3).

This book aims to present an alternative.

In the process, I will draw on a variety of different sources including my own work in order to give readers access to an alternative view and to provide them with resources for change.

Contrary to the claims of the state managers, this combination of a permanent war economy and the deindustrialization of the U.S. has had disastrous consequences. Experience shows we can't have guns and butter; worse still, the nation's infrastructure is in disastrous shape. Fortunately, we can measure the cost.

Thanks to the initiative of the American Society of Civil Engineers we have a *Report Card for America's Infrastructure*. According to the ASCE, the current condition of U.S. infrastructure warrants a grade of D+. Achieving grade A infrastructure performance in the United States will require reconstruction of many significant areas. These include: roads; bridges; transit facilities; aviation; schools; drinking water; wastewater disposal; dams; solid and hazardous waste disposal; navigable waterways; energy supply. To round out the cost of a national effort to modernize and upgrade U.S. infrastructure I have added provision for replacing several million "worst-case" housing units; and the estimated cost of the electrification of U.S. railroads. Ironically, the total estimated cost of these improvement projects also equals \$2.3 trillion. This brief discussion defines a great choice: Where should we allocate the great masses of wealth—to the permanent war economy, or to the reconstruction of American life? While this book argues for the latter, its central task is to offer ways to reverse the decay. It will show how an orderly process of modernization in infrastructure and related industries – as outlined by the ASCE – might well create between

* Veterans of Pentagon administration confirm major points made by Secretary Rumsfeld in his Sept. 10, 2001 address on Pentagon accounting, including understanding that money paid out by the Pentagon is good for the economy.

one and four million new, productive jobs, and give fresh life to the great manufacturing industries of the U.S. (For details see Dr. Greg Bishak's report in Appendix A).

Our leaders show little interest in change.

Upon taking office (in 2000) the George W. Bush administration redirected billions of dollars to fund an ambitious effort to extend U.S. hegemony. This campaign for world hegemony for the United States, as displayed in Iraq, Afghanistan, and preparations for potential wars, has consumed resources urgently needed in the U.S. civilian economy. Meanwhile, industrial decay in the U.S. and major job losses for Americans have been accelerating as American managers – eager to garner the financial benefits of Chinese wages ranging from \$60 to \$140 a month – transfer production lines from their U.S. bases to China. On the current path, what will be left for young men and women other than to enroll in one of the Pentagon's formations?

The costly experience that yielded Secretary Rumsfeld's loss of \$2.3 trillion also includes the costs of the technological feats of WWII to 2001. These included production of large complex aircraft as though they were Model-T's, while researching and erecting the military industrial (nuclear) establishment with vast physical assets, and a workforce that established it as by far the largest single enterprise in the United States. With those understandings, Americans could see losing or otherwise misplacing even \$2.3 trillion without "batting an eyelash".

High level discussion among corporate and government chiefs regarding the continuing management of the U.S. war economy began as Hitler's armies were approaching military defeat in 1944. Leading business managers and senior government officials began to discuss a central problem of the post-war economy. The United States alone possessed an immense industrial system that was untouched by military destruction and therefore would be the final strategic location for producing and exporting the consumer and capital goods required for recovery in the rest of the world. Accordingly, the *Wall Street Journal* (January 6th, 1944) reported on the thinking of Vice Chairman Batt of the government's War Production Board. He urged the adoption of a plan for balancing the expected rush of machinery and other goods coming out of the United States.

The rest of the world, Batt suggested, could pay for American exports of goods and finance capital by making available to the United States large quantities of raw materials. These, in turn, could be "mothballed" – removed from the marketplace by placing them in buried stockpiles. Thereby, a strategic economic problem could be "solved" while affording the United States a stockpile of raw materials, to help cope with future national military emergencies.

In a January 1944 speech to the Army Ordnance Association, Charles E. Wilson, president of the General Electric Corporation, proposed an alliance of business and the military in a permanent war economy. This was proposed as "a continuing program and not the creature of an emergency... The program must be insured and supported by the Congress in the beginning through resolution ... later, by regularly scheduled and continuing appropriations. Industry's role in this program is to respond and cooperate ... Let us make this 3-way [executive branch, congress and industry] partnership permanent and workable, not just an arrangement of momentary convenience."³

Recall that within the U.S. government the international political perspective at the close of World War II was dominated by the prospect of a worldwide competition between the United States and the Soviet Union. No long wait was required before the relentless competition that came to be called the Cold War was set in motion.

There is no question that the appearance of nuclear military capability in the Soviet Union, followed swiftly by Soviet invention of the hydrogen bomb, had a decisive effect in blurring a traditional “holding at arm’s length” attitude among certain sectors of American business towards the federal government. The political and military aspects of the great contest between the U.S. government and Stalin’s Russia bound the senior managers of the U.S. government with top corporate management of the United States.

A Permanent War Economy was no longer a speculation or merely a plan for smoothing U.S. economic relations with many countries in the world. The Permanent War Economy came to be the key strategy for waging the Cold War.

America’s government and corporate managers joined in a favorable assessment of the post-World War II economy. From right to left the main verdict was that the U.S. economy could sustain both Guns and Butter. That was the verdict of both the government’s National Security Council (1950) and the Marxist economist Paul Baran.*

PRODUCTIVE AND PARASITIC GROWTH: EISENHOWER’S ASSESSMENT

A different perspective on the subject of military spending was pronounced by President Dwight D. Eisenhower in a 1953 address to the American Society of Newspaper Editors. He stated that:

Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed.

This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children.

The cost of one modern heavy bomber is this: a modern brick school in more than 30 cities. It is two electric power plants, each serving a town of 60,000 population. It is two fine, fully equipped hospitals. It is some 50 miles of concrete highway.

We pay for a single fighter with a half million bushels of wheat. We pay for a single destroyer with new homes that could have housed more than 8,000 people.

This, I repeat, is the best way of life to be found on the road the world has been taking.

This is not a way of life at all, in any true sense. Under the cloud of threatening war, it is humanity hanging from a cross of iron.⁴

Despite such warnings, the economists deceived themselves, (and most of the American people) by failing to take into account the difference between productive and parasitic growth. Productive growth is represented by goods and services used for consumption or

* NSC-68, “A Report to the National Security Council by the Executive Secretary on United States Objectives and Programs for National Security, April 14, 1950,” *Naval War College Review*, May-June 1975 & Paul A. Baran, *The Political Economy of Growth* (Monthly Review Press, 1957), p. 41. See also S. Melman, *After Capitalism*, p 145.

further production. Parasitic growth refers to products that, (while money valued) are neither useful for consumption or for production. Though military industry is economically parasitic, the value of its production is nevertheless included in the accounting of national wealth called Gross Domestic Product, (GDP). Thus, production of war materiel masked the decline in production of civilian items. In overlooking this point, the U.S. managers established a policy that would later devastate U.S. manufacturing, (particularly capital goods) infrastructure and population.

The aim of this small book is to introduce the reader to two distinct characteristics of the organization of U.S. government and business, which together have considerable impact on the character of the nation. They are deindustrialization and warmaking. There is no denying that the topics included are wide ranging and even at times delve into territory unfamiliar to many people. However, these points detail how decisions over resources and people's lives are being exercised by those in positions of power.

PROFIT AND POWER

The long duration of the U.S. Permanent War Economy – from the close of World War II until today – has afforded ample opportunity for erecting policies and administrative structures that have enabled continued collaboration of corporate managers focused on their classic profit maximizing, with state managers whose focus is on the accumulation of power. Profit maximizing becomes merged with power maximizing.

The two management styles have interpenetrated. The top managers from the corporate and from the state managerial traditions now work together in relatively smooth cooperating fashions, and move seamlessly from government to industry and back to government. All this is seen most clearly at the senior levels of the current U.S. government: President Bush and Vice President Cheney are both life-long politicians with solid corporate backgrounds.

Despite their overt differences in policy, the two traditional parties share this unspoken commitment to the Permanent War Economy and to the political and economic tactics that it requires. That is why political candidates of the two political parties often find more in common with each other than differences of any fundamental sort. Political candidates of both parties still find common ground in approving policies of “free trade” or “globalization”. Neither of these terms reveal or give emphasis to the export of both blue and white-collar jobs from the United States and the consequent conversion of many towns and cities into “ghost towns”, empty factories and empty main streets.

All this has been proceeding while the corporate-state managers and their economists celebrate the deindustrialization of the United States as a move towards an American “post-industrial” or “service economy”—a cover story in wide use and apparently quite useful for obscuring the intent of the state-corporate managers who dominate American economy and politics, and guide the spearheads of the military economy—such as weapons sales, weapons gifts and military training programs— that have proven to be so useful for enlarging the sphere of profit and power maximizing.

THE PENTAGON—DEINDUSTRIALIZATION CONNECTION

Unlike Germany, Japan and the well-developed economies of Western Europe, the United States has had a massive preference for applying its stock of technologically savvy people to military problems. This shows up without ambiguity in the following collection of data.

Government R&D In the U.S., Japan, Germany, 2001

	U.S.	Japan	Germany
Total Government R&D Spending, \$ Billions	86.7	23.2	17.9
% for Defense	52.7	4.3	7.1
% for Industrial Production and Technology	0.5	7.5	12.1
Source: National Science Foundation, <i>Science and Engineering Indicators: 2004</i> , Appendix Table 4-48.			

The American government concentrates R&D money on the military: 52.7 percent of the U.S. government's R&D spending—almost \$46 billion—goes to military research and development projects, and one half of one percent to Industrial Production and Technology. The Pentagon's R&D projects yield results that—however useful on the battlefield—do not promote efficiency in the production of consumer goods or capital goods (the means of production).⁵

In stark contrast, Japanese and German industrial workers and managers have been able to build solid reputations for high quality products while the Pentagon has led U.S. firms to achieve high profit, even as their managers have been abandoning American workplaces and their workers, (I discuss this below in Chapter 3).

The fact that the Pentagon has the largest budget for sponsoring R&D in the federal government since World War II has also made a lasting impression on American universities. The requirements of the military have been accepted by universities and our engineering schools as desirable training objectives.

Massive Pentagon R&D budgets consume resources that could otherwise be applied to advancing the design of civilian goods and the methods for producing them. Thus, in management circles, and in key newspapers, discussion about productivity in U.S. industry characteristically turns to worker behavior: on wages & union struggles for decision-making. Absent from these discussions is attention to the productivity of (fixed) capital and the array of factors that bear on stabilization of production operations.

In order to improve the productivity of manufacturing operations it is essential to take into account all the major elements that enter into production: age of production equipment; frequency of unscheduled downtime in production; percentage of scrap produced; waste in the use of raw materials, and energy; etc. However, no significant federal support has been available for research on improving productivity. So long as the federal government deploys its R&D funds with Pentagon priority and ignores improving productivity for civilian production and technology, U.S. firms will be at a disadvantage with respect to Japanese and German firms—who benefit from government sponsored R&D.

In this environment where few incentives exist for improving the productivity of U.S. civilian operations through innovation, many companies have opted to relocate their factories to foreign locations,.

As I will show in Chapter 4 some American engineers and workers have been able to thoroughly redesign production operations to economically produce not only consumer goods but also the most sophisticated capital goods.

PENTAGON CAPITALISM AND DEINDUSTRIALIZATION

Since the end of the Cold War, the U.S. military budget continues to mushroom.

Downsizing of the military and base closings have been offset by spending on enormously expensive high-tech weaponry. This is the legacy of the so called, “Revolution in Military Affairs”. In March 2003, for example, the Navy was scheduled to receive the *U.S.S. Reagan*. With a crew of about 5000, this nuclear powered aircraft carrier alone will cost \$5.4 billion, not counting the cost of the aircraft, nuclear fuel, the crew and immense arrays of equipment required to maintain a large and diverse body of aircraft. The *U.S.S. Reagan* will be another of 12 main aircraft carrier battle groups, each with their complement of *Aegis* destroyers (\$1.3 billion each), submarines and supply ships. Each major aircraft carrier battle group includes the equivalent of a “mini” air force with diverse aircraft and global reach. A principal fighter plane for the carriers is the *FA-18E-F* fighter, which is budgeted at \$72 million per plane. A complement of 40 such planes costs \$2.8 billion, and when added to the \$5.4 billion basic cost of the carrier, the total is more than \$8 billion. The United States Navy has also ordered three nuclear-powered attack submarines with a price tag of \$2.3 billion each. No other nation is producing nuclear powered submarines or nuclear powered warships.

The Air Force is also receiving a fleet of *C-17* heavy airlift planes. These large aircraft have intercontinental range and enormous load carrying capacity. They cost \$279 million per plane –exceeding the price of a fully equipped intercontinental passenger airliner. The Air Force is also to receive a fleet of *F-22 Raptor* fighter planes; more sophisticated than the equipment of any other air force in the world. The *Raptor* costs \$285 million per plane. Then there is the *Joint Strike Fighter*. That is a controversial and ambitious project designed to serve the varied requirements of each of the principal military forces of the United States. It may be sold profitably to other countries as well. The *Joint Strike Fighter* program, which is scheduled for several thousand planes, is estimated to require an outlay of \$750 billion. This program triggered an intense competition for the contracts among congressmen from principal aircraft producing states, like California, Texas and Washington. Some members of Congress see this as a bonanza with a long future.

These aircraft and naval vessels are major pieces of the new U.S. military arsenal. They are accompanied by hundreds of billions of dollars for great fleets of armored land vehicles and the equipment for scores of new military bases being constructed around the world. In countries of the Middle East and Central Asia, the United States has been constructing tens of new military bases – thirteen alone in the former Soviet Republics of Central Asia. (See the maps of new U.S. military bases in Chapter 2). These will extend air and ground-based U.S. military power eastward, to within three hundred miles of China.

Spending for conventional explosives and nuclear-equipped missiles has increased as well. The Pentagon has bought special missiles and bombs of varying size designed to penetrate steel, reinforced concrete, and deep underground military facilities of every sort and is pressing for the deployment of small nuclear tipped “bunker busting” bombs.

As we have seen, the military priorities of the federal government are accompanied by chaotic accounting conditions in the Pentagon – across all services. This means that the billions of dollars formally voted by the Congress are no measure of actual spending activity – which finally are under no adequate oversight.

While the U.S. government has been throwing money at military industry, a huge change has been happening in the rest of the American economy.

U.S. firms have been closing factories here and moving them to countries where unions cannot oppose management. This **deindustrialization** has happened so quickly that America’s capacity to produce anything is seriously undermined. For example, in 2002 the

New York City government announced plans to buy a new fleet of subway cars and invited bids for doing the work. Though these contracts are worth \$3-4 billion, *not one U.S. firm responded*.^{*} To take a more everyday example, of 100 products offered in the Fall 2003 *L.L. Bean mail order* catalogue 92 are *Imported* and only 8 *Made in the U.S.A.* All kinds of companies have shipped their factories abroad, leaving only top management offices in the U.S. Closing American factories has not only left millions without work, but has also diminished the U.S. production capability required for repairing our broken infrastructure.

Apart from its economic consequences, joblessness has a poisonous effect on the human psyche, for it sends a message: not needed, not wanted. Unfortunately, U.S. politicians—federal, state, city and county—have typically remained supportive of the federal government's military priorities, agreeing to compete for their "fair share" of the Pentagon's orders and the accompanying employment. This orientation continues to act as a barrier to reconsidering appropriate policies on behalf of America's working people.

SHORTCHANGING AMERICA'S CITIES

The Mayor of New York City, Michael Bloomberg, has demanded cuts in spending by the City government, for he reckoned that a budget deficit of \$1.1 billion for 2003 would be followed by an enlarged deficit in the 2004. How did the Mayor propose to cope with the prospective deficit? He offered a host of detailed plans for cutting the outlays for schools, libraries, the fire department, the police department, the sanitation department, cuts in the staffs for child welfare, for services for elderly people and children.

He offered increases in various City taxes, including income and property taxes and even considered charging for use of the City's bridges over the East River. Soon, with more progress in miniaturization, perhaps technology (like the E-Z-Pass used on bridges and tunnels) will enable the City to raise money by charging each citizen a fee for crossing the street. The Mayor did not propose making an appeal to the federal government to cut the size of the military budget.

This problem is not limited to the Big Apple, although its anticipated *\$1.84 billion* deficit for 2004 is the nation's worst. City budget deficits have become endemic: Atlanta, \$82 million (FY 2002); Los Angeles, \$250 million (FY 2002); Cincinnati, \$35 million (FY 2003); San Diego, \$30 million (FY 2003); San Francisco, \$347 million (FY 2003); Chicago, \$116 million (FY 2003); Houston, \$55 million (FY 2004); Philadelphia, \$144 million (FY 2005).^{* 6}

In 1998 Allan G. Hevesi, then Comptroller in charge of the City's budget planning, prepared a report on the capital funds needed by the City. His report showed the money required by each City department for new buildings and equipment from 1998 to 2007. Of the \$92 billion required, only half was made available by the time his report was prepared. Now, with financial crises ever larger because of the further militarization of our lives, the

^{*} On behalf of a few colleagues from Columbia, City College and Rutgers, I addressed chief officers of a group of firms that are well-established designers and manufacturers of heavy machinery, like agricultural, earth-moving and related equipment. I invited their attention to the possibility of undertaking design and production of subway cars with the New York City fleet of 6000 cars as a basis for serious entry to this industry. They responded—declining any interest, declaring that they were busy elsewhere, or that their current activities are in accord with the wishes of their stockholders.

^{*} Editor's Note: The economic devastation wrought by natural disasters like Hurricane Katrina in 2005 only worsens the already dire situation facing many U.S. cities. Once again, in New Orleans, U.S. infrastructure failed its neediest citizens.

buildings and equipment needed by a modern city will not be available in any foreseeable future. Every City department will be a casualty of the federal government's warmaking.

SOMETHING FOR THE SERFS

While millions of Americans suffered losses of savings and pension funds from the 2001-2 meltdown of corporate securities, the same events in securities markets created a new class of economic royalty. These were the American corporate and government insiders who used their positions to know when to buy and when to sell in the securities markets and thereby amass enormous profits. So the *New York Times* (Aug. 25, 2002) displayed a list of the 100 executives who made the most money from strategic selling of their company stocks. Altogether, these people reported \$6.2 billion in executive rewards. The top CE got \$1.4 billion and CE number 100 on the list took home a mere \$9.6 million.

All this marked a historic turn of events. A new royalty was created, with royal outfitting: palaces (not just big houses); staffs of servants with butlers trained to oversee the underlings; lavish cars and other accoutrements.

What can we expect from the new American royals? Mr. Gary Winnick, once chairman of *Global Crossing* had gained a profit of \$734 million by selling company stock before the shares became worthless. He told a Congressional committee that he "would write a check for \$25 million to cover part of the retirement money several thousand employees lost when the stock collapsed." Said Winnick: "I call on other chairmen and C.E.O.'s of other companies to step up and write a check."

THERE IS AN ALTERNATIVE

This book deals with two interrelated topics: how the U.S. war economy works; and the deindustrialization of America. Both phenomena reinforce each other. The many priorities given to the military have hastened the decline of America's civilian economy and spread deindustrialization. And deindustrialization—by crippling economic power—has increased U.S. state managers' reliance on military might. The classic proposition that you can't have both guns and butter *without limit* is proving true.

The United States is now housing a war system that is without geographic, economic or political limits. This war system has demonstrated destructive effects on American life. A crucial part of this war system is its direction by a modified U.S. government. The federal government is no longer a mere political structure. It has been made into a managerial system comprising top managers with corporate and political backgrounds. The combination is a species of state-capitalism with pretension to have abilities that include power without limit. The same state capitalist managers operate the U.S. economy as though its resources were unlimited. In reality, however, the U.S. engine for wealth production is being broken.

Chapter one explains further the hierarchical relationship that has in many respects merged the top managements of the Department of Defense (DoD), with the managements of business firms producing for the DoD, and how this merger has created a system of "cost maximizing" which causes a heavy drain on the federal treasury. Also detailed is the inherently parasitic relationship of the military economy to civilian economy, and the involvement of Congress in perpetuating this system. Operating a permanent war economy is now the main continuing activity of the U.S. government, dominating its spending and determining the number of people it employs.

Chapter two defines the power maximizing methods used by the combined corporate-state management. The intertwining of economic and political powers has endowed the state management with unusual capabilities that outstrip those available in the more limited

civilian managerial sphere of corporate economic rule. With these new capabilities, the state-corporate managers use military operations to enlarge their sphere of decision-making power. At different times, the rulers of two principal states, (Vietnam and Iraq), that had been war-targeted by the U.S. top managers actually petitioned the American ruling group to negotiate a settlement with each of them instead of seeking hegemony by imposing military defeat. The chiefs of these lesser states were rebuffed. Nevertheless, these characteristics do not guarantee that military superiority, short of genocidal intentions, can succeed. For conditions of guerilla warfare have operated to set unanticipated limits on military victories by the ruling group.

Chapter three describes how the main body of corporate and state executives has proceeded to deindustrialize manufacturing centers of the United States, relocating plants and research centers to countries like Mexico, India and China where governing bodies see to it that trade unions cannot get off the ground.

Chapter four shows the feasibility of producing both high quality capital goods and consumer goods in the United States. Solid research and development has enabled the New Balance firm—a major shoe manufacturer—to revise its U.S. production methods. The firm can produce shoes in the U.S. while planning to enlarge its U.S. produced share of the firm's worldwide network of factories. This chapter also reports on the innovative achievements of Haas Automation Inc. This firm, located in California, has been growing as a producer of high-tech computer numerical controlled machining centers—all produced in the U.S.—and growing. The Haas performance deserves special attention because machine tools are the basic “capital goods”, the foundation for all other manufactured production.

Chapter five summarizes the consequences of continuing with the pillaging of American industry by a permanent war economy on the one hand, and contrasting that with the large economic and human gains that we could obtain for America, in place of wars without end. As an alternative to the processes of warmaking or preparing for war, and the core pattern of deindustrialization we call upon the strategic design for upgrading the infrastructure systems of the United States that was developed by the American Society of Civil Engineers. The permanent war economy currently has *stranded* the U.S. with a Model-T infrastructure in the twenty-first century. An effort to rebuild and upgrade American infrastructure can serve as a strategic framework for reconstituting a U.S. industrial system, and employment with efficiencies beyond compare. In this pursuit, particular attention is paid to the strategic part that could be played by reindustrializing the capital goods production capability of the United States.

¹ Donald H. Rumsfeld, “DoD Acquisition and Logistics Excellence Week Kickoff—Bureaucracy to Battlefield Remarks”, Speech at the Pentagon, Sept. 10, 2001. www.defenselink.mil/speeches/2001/s20010910-secdef.html & U.S. Department of Defense, Office of the Inspector General, “Audit Report: Internal Controls and Compliance with Laws and Regulations for the DoD Agency-Wide Financial Statements for FY 1999”, (Report No. D-2000-091), Feb. 25, 2000.

² U.S. Department of Commerce, *Survey of Current Business*, Sept. 2002, Table 5, p. 30.

³ Charles E. Wilson, “For the Common Defense, A Plea for a Continuing Program of Industrial Preparedness,” *Army Ordnance*, Vol. XVI, No. 143, March-April, 1944. See other discussions of Wilson's proposals in: John M. Swomley Jr., “The Growing Power of the Military,” *The Progressive*, Jan. 1959. See also Walter J. Oakes, “Toward a Permanent War Economy,” *Politics*, Feb. 1944.

⁴ Address by President Dwight D. Eisenhower, “The Chance for Peace”, April 16, 1953. www.eisenhower.utexas.edu/chance.htm

⁵ National Science Foundation, *Science and Engineering Indicators: 2004*, Appendix Table 4-48.

⁶ *New York Post*, Dec. 16, 2003; *Atlanta Journal-Constitution*, May 7, 2002; *Daily News of Los Angeles*, Jan. 16, 2003; *Cincinnati Enquirer*, Oct. 31, 2002; *San Diego Union-Tribune*, Feb. 22, 2003; *San Francisco Chronicle*, June 2, 2003; *The Bond Buyer*, Aug. 1, 2002 [Chicago]; *Houston Chronicle*, Apr. 6, 2003; *The Bond Buyer*, Jan. 5, 2004 [Philadelphia].

Chapter 1 - The American Corporate-State Regime

The creation of the permanent war economy in the U.S., caused a merger of the operations of previously separate government and corporate managements. This new relationship was modeled after a novel form of organization, the Central Administrative Office, (CAO). Which was developed after World War II.

At the close of World War II rapid growth in the size of America's leading industrial firms gave rise to new problems of managerial control. The chiefs of the larger firms discovered that it had become unwieldy to try to specify detailed rules, appointments of subordinates, decisions about products, production details etc. – all from one large management office. The component products and factories were too diverse and far-flung for such micro decision-making to be done in one place. The idea of a “Central Administrative Office” was developed to solve this problem.

A CAO was charged with formulating general policies to be followed by the managers of subordinate divisions (or firms) who reported on their key operations on a scheduled basis to the chiefs of the CAO. The CAO approved top appointments for the important subordinate units while charging them with executing broad policies as defined by the CAO. This style of operation allowed indefinite enlargement of the number of “subordinate firms” that could be supervised by a well-staffed CAO. A firm hierarchy was established where multiple contractor firms would report to a regional CAO, and the regional CAOs in turn reported to the national CAO.

Once elected, President John F. Kennedy and his advisors drawn from schools of management sought ways to exert tighter control over the far-flung operations of the U.S. government, especially over the important Department of Defense. For this task President Kennedy appointed, (as Secretary of Defense) Robert McNamara who was president of the Ford Motor Company and had won renown as an innovative organizer of that far-flung corporation. In the name of controlling and reducing the military establishment McNamara installed a Central Administrative Office type organization in the Pentagon to oversee the operations of the Department of Defense.

This new state-management differed from President Eisenhower's “military-industrial complex” in its structure. The “complex” referred to a loose collaboration of senior military officers, industrial managers, and legislators, operating mainly through market relations. McNamara's central-management office replaced the market with a management system that directly governed internal operations and inter-firm relations of the private business firms serving the Pentagon. Thus the DoD became a structured central administrative control center regulating tens of thousands of subordinate managers. Independent of the JFK White House's intentions, the CAO managerial structure strengthened the normal authoritarian and anti-union features of Managerialism.¹

The new state-management became by far the largest and single most important management in the United States, engaging about 290,000 men and women who arrange work assignments to subordinate managers (contract negotiation), and supervise compliance of submanagers of subdivisions with the top management's rules. This is the largest industrial central administrative office in the United States—perhaps in the world.

The state-management has also become the most powerful decision-making unit in the United States government. Thereby, the federal government does not “serve” business or “regulate” business. For the new management structure runs the largest business of them all. Government is in business. It is state capitalism.

The normal operation, of the new state-management has been based upon preemption of a lion's share of federal tax revenue and of the nation's finite supply of expert technical

manpower. This use of capital and skill has been dedicated to parasitic economic growth—military products which are non life-serving and useless for further production.²

Nevertheless the American military institutions have great endurance because many people see them offering sustenance to the American people. This comes in the form of: wages and salaries of military personnel; a system of pensions; veterans hospitals; wages and salaries of military industry workers of all kinds; research grants to the universities; the GI Bill paying tuitions (from skills training to university degrees); and the incomes of every sort of small business abutting military bases. These help to cement popular support for the military institutions while obscuring the vast array of harmful, parasitic effects.

THE HUMAN AND INDUSTRIAL COST OF DEFENSE

From 1990 to 2000, the United States government spent \$2,956 billion on the Department of Defense. This sum of staggering size (try to visualize even one billion of anything) does not express the cost of the military establishment to the nation as a whole. As I have argued elsewhere, the true cost is measured by the “opportunity cost”, by what has been foregone, by the accumulated deterioration in many facets of life, by the inability to alleviate human wretchedness of long duration.³

Here is part of the human inventory of depletion:

- By 2001, huge numbers of US homes were decaying. 2 million homes have severe physical problems. 13 million have leaks from outside the structure. 1 million homes have holes in their floors. 1 million homes are infested with rats. 72,000 homes have no electricity.⁴
- In 2002, 9.3 million people in the US were classified as “hungry” by the U.S. Department of Agriculture. Furthermore, almost 35 million people - 12.5 percent of U.S. households - had no secure supply of food, due to lack of resources.⁵
- In 2002, 34.8 million people in the US lived in poverty. This is 12.4 percent of the population, and an increase of 1.4 million from 2001.⁶
- 2.3 - 3.5 million people (including 1.3 million children) in the U.S. experience homelessness each year.⁷
- 41.2 million people in the U.S. lacked health insurance during the entire year 2001.⁸ In 2002, 18,000 uninsured Americans died due to lack of treatment.⁹
- 14 million children go to class in deteriorating public schools. Two thirds of all public schools have troublesome environmental conditions.¹⁰

The human cost of military priority is paralleled by the depletion of industrial technology caused by the concentration of manpower and capital on military technology and in military industry.

As civilian industrial technology deteriorates or fails to advance, productive employment opportunity for Americans diminishes. As I pointed out in *Pentagon Capitalism*:

No mere ideology or desire for individual power can account for the colossal costs of the U.S. military. Rather, the state-management represents an institutionalized power-lust. A normal thirst for more managerial power within the largest management in the United States gives the new state-management an unprecedented ability and opportunity for building a military-industry empire at home and for using this as an instrument for building an empire abroad.¹¹

Even individual operations of the DoD are of a monumental scale. Discussing Bush's supplemental funding requests for the occupation and reconstruction of Iraq, Senator Robert C. Byrd stated, "At \$87 billion, the President's request is larger than the economies of 166 countries. It's larger than the individual economies of almost half the states of the Union."¹² The scale of these operations shows that the state-management has in fact become a para-state, a state within a state.

All of this only begins to reckon the true cost to America of operating the state military machine and these costs are borne by future generations. The estimated cost of the Vietnam War, for example, from 1965 to 1973 to the United States population is reckoned at \$676 billions. This estimate includes not only the direct military outlays but also the military assistance to client governments, interest on the national debt and payments for veterans, which will endure for a long time.¹³ The cost to the Vietnamese people has no reckoning.

The magnitude of the decision-power of the Pentagon management has reached that of a nation-state. Modeled after the central administrative offices of multi-division industrial firms—such as the Ford Motor Company, the General Motors Corporation, and the General Electric Company—the new top management in the Department of Defense was designed to control the activities of subsidiary managements of firms producing, in 2003, \$115 billion of goods purchased by the Department of Defense.¹⁴

For all the talk about "revolutions in military affairs", little has changed since I described the nature of the beast – years ago:

By the measure of industrial activity governed from one central office, this new management in the Department of Defense is beyond compare the largest industrial management in the United States, perhaps in the world. Never before in American experience has there been such a combination of economic and political decision-power in the same hands. Recall that the senior officers of the new state-management are also senior political officers of the government of the United States. Thus, one consequence of the establishment of the new state-management has been the installation, within American society, of an institutional feature of a totalitarian system. The new industrial management has been created in the name of defending America from its external enemies and preserving a way of life of a free society. It has long been understood, however, that one of the safeguards of individual liberty is the separation of roles of a citizen and of an employee. When an individual relates to the same person both as a citizen and as an employee, then the effect is such—regardless of intention—that the employer-government official has an unprecedented combination of decision-making power over the individual citizen-employee.¹⁵

In his final address to the nation as President, Eisenhower gave his countrymen a grave message. “In the councils of government we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist.” Here and in subsequent speeches, Eisenhower did not offer a precise definition of what he meant by military-industrial complex. Military-industrial complex meant a loose, informally defined collection of firms producing military products, senior military officers, and members of the executive and legislative branches of the federal government—all of them having a common ideology as to the importance of maintaining or enlarging the armed forces of the United States and their role in American politics.

The new industrial management in the federal government is, by contrast, clearly structured and formally organized, with all the paraphernalia of a formal, centrally managed organization, whose budget draws upon 10 percent of the Gross National Product of the richest nation in the world.¹⁶

Managers in both civilian and state-capitalist firms seek to expand their decision power, but they do so in different ways. Managers in civilian firms try to *reduce their costs of production*, so they will have greater profits (capital) that can then be used for other projects. Managers in state-capitalist firms are under no pressure to minimize their costs, because new funds are made available each year with Congress’s allocation to the DoD. Indeed, from the very start in the “cost plus” system of the 1940s to today’s “cost maximizing” profit structure, the more managers in the military economy charge for their products, the more profits they make. Additions to the flow of capital funds from the Pentagon are welcomed. One example is the pulley puller for the F-16 fighter – essentially a steel bar two inches in length with three screws tapped in. In 1984, this small item was sold to the DoD by General Dynamics for \$8,832 each. If the same equipment were custom ordered in a private shop it would cost only \$25.¹⁷

In *Pentagon Capitalism* I documented how costs ballooning way beyond their price tag is a fundamental part of the structure of the military economy and its “normal” way of doing business.

The Pentagon record—before, during, and after Robert McNamara – includes other obvious cost excesses. Before McNamara, average prices on major weapons systems were 3.2 times their initial cost estimates. Under McNamara, the famous multipurpose F-111 airplane was costing \$12.7 million per plane by December, 1969, as compared to a first cost estimate of \$3.9 million—or 3.25 times the initial estimate. Such performance under the well-advertised regime of the state-management’s “cost effectiveness” programs has been characteristic. The pattern of cost excesses during the rule of “cost effectiveness” is explicable, not as aberrant behavior, but as a pattern that is normal to the state-management. The state-management’s control system includes monitoring for so-called cost overruns as a regular function. Payment for the cost overruns by the Pentagon has been the functional equivalent of a grant of capital from a central office to a division of its firm.¹⁸

This pattern still exists in the present day. A 2003 example of the multiplication of weapons system costs exists in the F-22 Raptor, an ultra-sophisticated fighter. The price of the F-22

has increased from initial estimates of \$159 to \$250 million per plane, an increase of 57 percent.¹⁹ Despite such a shoddy record, the Pentagon management's decision making authority has not been reined in.

The American people and the Congress have long accepted decision-making by the state-management in the belief that it possesses critical expertise, not only in military matters, but also in the management of industry and the economy. In its 1966 Report, the Joint Economic Committee of the Congress declared:

Let no one, at home or abroad, doubt the ability of the United States to support, if need be, simultaneous programs of military defense of freedom and economic and social progress for our people, or (2) our capacity and preference to live and grow economically without the stimulus of government spending on defense or a competitive arms race.

In a memorable address at the University of Connecticut, Senator Fulbright stated the contradiction:

There is a kind of madness in the facile assumption that we can raise the many billions of dollars necessary to rebuild our schools and cities and public transport and eliminate the pollution of air and water while also spending tens of billions to finance an open-ended war in Asia.²⁰

In 2003, programs for civilian benefit have been denied necessary funds to make way for the gargantuan expense of a program of wars, such as the wars and occupation in Afghanistan and Iraq. Senator Robert C. Byrd commented on this point when discussing the funding needed for children's education:

I wonder how the Senators who object to the cost of my amendment will view the President's request to add \$60 billion or \$65 billion or \$70 billion to the deficit to fund military and reconstruction activities in Iraq. I wonder if they will be comfortable voting to support a massive spending program for Iraq if they cannot bring themselves to support a comparatively meager increase in education funding for American schoolchildren.²¹

MILITARIZED STATE CAPITALISM

In the classic private business capitalist economy, the chiefs of large industrial and financial firms had substantial political influence. Under state capitalism top political and economic decision power is joined in the hands of government managers. These state-managers dominate the economy even though private business may still operate within it. Examples of civilian state capitalism can be found in various economies of Western Europe and in Japan. In the United States with its permanent war economy, military power is a chief component of the state management. Thus to a large degree, the U.S. can be understood as a *militarized* state capitalism.

In state capitalism, the top managers' control extends throughout the entire economy, even affecting privately owned and privately controlled enterprises. For example, this power can be used to guarantee a firm's access to capital, or to guarantee the market for a firm's

products. In military state capitalism, the exercise of these powers becomes more prominent and is used in direct conflict with the civilian economy, (see below).

State capitalist economy is largely regulated by a system of subsidies, which replace the self-correcting market mechanism of private business capitalism. This is true of the United States, despite the odes to “the free market” and “the invisible hand” sung by the president and his economic advisors.

Subsidy payments from government do appear under private capitalism – when government moves in to regulate parts of the economy. Subsidy systems flourish to their fullest under state capitalism, where the chiefs of the economy use their political decision power to enforce their economic priorities. In the case of military state capitalism the subsidy is largely rendered on behalf of economically parasitic activity, that yields no return to society.

A military economy has unique characteristics that affect its relationship with the surrounding economy and society. A set of key characteristics is summarized here, without pretending completeness, in order to portray the range of consequences from the system as a whole.²²

THE PARASITIC NATURE OF MILITARY ECONOMY

As I have argued, the system of state capitalism has three key characteristics: the parasitic quality of its military economy; the relentless drive of its managers to expand their drive for profits and power; and the corrosive impact this has on the civilian economy, which can be measured in the form of “opportunity cost”.

For most Americans, effects attributable to parasitic economic growth are not apparent. The generations of Americans who have been instructed by standard economics texts and courses are not equipped to see a part of the economy as parasitic. Instead, their appreciation of economy is dominated by theories about competitive market relations, the allocation of incomes, taxes, interest rates, and the role of government as a regulator of economy. I described this problem in *The Permanent War Economy*:

To appreciate the nature and effects of a permanent war economy, a functional differentiation is essential. Productive growth means goods and services that either are part of the level of living or can be used for further production of whatever kind. Hence, they are by these tests economically useful.* Parasitic growth includes goods and services that are not economically useful either for the level of living or for further production.²³

Ordinarily a civilian economy can look forward to making advances in its total productivity because of the gains that can be made in the efficiency of machinery, hence in productivity of *capital*, and thereby in the efficiency of labor. However, if new machinery, however efficient, is installed for producing military materiel, then what emerges is military materiel, which no factory can use for any further production. The result is that the normally available addition to production capability that stems from making and installing new production equipment is

* There are, of course, other kinds of usefulness: political, esthetic, military, religious. Here we are interested primarily in economic usefulness. Thus, the absence of economic usefulness does not preclude other effects.

forgone for the whole society. That is also the reason why investment in military industry, while adding to the flow of money, does not successfully offset declining investment in new productive machinery.²⁴

In the permanent war economy whole industries and regions that specialize in military economy act as a parasitic drain on the civilian economy, from which they take their sustenance and to which they contribute (economically) little or nothing. Thus a system of “internal imperialism” is created among the sectors of the economy.

The economic significance of parasitic economic growth is often rendered obscure by the apparently lesser magnitude of some of the spending involved. Money spent on military research and development (R&D) reflects economically parasitic activity, but R&D costs are rarely a major item of expense in manufacturing industry. U.S. manufacturing firms spend about 3.3 percent of their net sales dollars for R&D.²⁵ But the significance of this activity cannot be measured by its proportionately small cost. Thus, when R&D is not properly done, results like poor product design or poor production methods can have disastrous effects on the economic position of an industry.

Large, continuing military budgets can generate military abundance alongside of civilian scarcities. Like it or not, the reality of our physical universe does not permit energy or materials to occupy two places at once. The following chart compares unmet needs in the civilian economy with the expense of Pentagon purchasing.

How The Pentagon Robs The People		
Cost of building housing for the 600,000 homeless families in the U.S. ²⁶	= \$59 billion	Army Comanche Helicopter program \$48.1 BN & Navy Joint Standoff Weapon program \$11.2 BN (SAR) ²⁷
Investment needed to provide 20% of U.S. electricity supply from renewable & clean sources ²⁸	= \$80 billion	Navy SSN 774 Virginia Class Submarine program \$71BN & Navy Advanced Amphibious Assault Vehicle program \$8.7BN (SAR)
Annual shortfall to meet federal safe drinking water standards and replace aging facilities ²⁹	= \$11 billion	Total cost of the Navy's "Future Surface Combatant" program (SAR)
Additional annual investment needed to improve the condition of U.S. roads and bridges ³⁰	= \$42 billion	Navy Trident Sub program \$35 BN & Army Interim Assault Vehicle program \$7 BN (SAR)
Rehabilitation of all unsafe U.S. dams ³¹	= \$2 billion	Tactical Tomahawk Cruise Missile (SAR)
Electrification of 50 miles of main-line	= \$210 million	One Global Hawk Unmanned Drone (PAC)

railroad ³²		
Annual cost to provide sanitary water to the 2.4 billion people worldwide ³³	= \$10 billion	2 Navy CVN6-B Aircraft Carriers (SAR)
3,500 miles of Maglev (magnetic levitation) Train Lines, running at 266 miles per hour ³⁴	= \$99 billion	F-22 Raptor Advanced Fighter program, [\$228 million / plane] (SAR)
100 New Natural Gas School Buses to replace high polluting diesel buses ³⁵	= \$12.7 million	One Longbow Apache Helicopter (PAC)
Annual cost to enroll 1100 Children in Head Start Pre School Programs ³⁶	= \$7.9 million	One "Upgraded" Abrams Tank (SAR)
Five years of funding for a global tuberculosis control program ³⁷	= \$9.1 billion	E-8C Joint Surveillance Target Attack Radar System program (SAR)
Fix deteriorating U.S. school buildings ³⁸	= \$268 billion	One third of the estimated cost of the Joint Strike Fighter program ³⁹
Cost of salaries for an additional 561,000 nurses, an increase that will be necessary by 2010 ⁴⁰	= \$20 billion	DDG-51 Guided Missile Destroyer program (SAR)
SAR = DoD <i>Selected Acquisition Report</i> , PAC = DoD <i>Program Acquisition Costs</i> . For more detail, see endnote 18.		

The Propensity to Expand

A second basic feature of militarized state capitalism is the strengthening of the tendency for managers to consistently push for the enlargement of their decision-power. State capitalism gives managers control over unprecedented levels of resources—including both manpower and money—thereby allowing them to operate in an otherwise unheard of manner.⁴¹

The following table makes clear how top heavy the military economy is by showing the striking discrepancy between those employed in administration and in actual production jobs.

Administration to Production Ratios in Select Military Industries ⁴²	
Industry, 1992	A / 100 P
Guided Missile and Spacecraft	218

Military Aircraft	162
Ordnance and Accessories (howitzers, mortars)	144
Ammunition (except for small arms)	73
Tanks and Tank Components	72
<i>A/100 P Ratio in all U.S. mfg</i>	57

Again, these unusually high levels of administrative staff are well known to analysts of military industries:

Rest assured, administrative costs are part of the necessary expense for operating any enterprise. In order to have production there must be decision-making. Someone must do the problem solving, record-keeping and related work. However when you examine the ratio of administrative workers to production workers the difference between military industries and U.S. manufacturing in general is striking. In 1992, for U.S. manufacturing industry as a whole, for every hundred production workers there were about fifty-seven administrative, technical and clerical employees. Contrast that with the guided missile and spacecraft industry where overhead ratios that are as much as 3.8 times the average for manufacturing as a whole. (Ratios for other military industries are shown in the accompanying chart.) This result stems from the use of more intensive managerial controls in Pentagon-serving firms. These controls require more frequent accounting reports, (each with more extensive detail) than what is required in the civilian economy. "The records of American industry since the beginning of the twentieth century show steady growth in the cost of administration."⁴³ However, the top managers of the military-industry empire speeded and intensified the ordinary processes by extending the scope and intensity of internal controls.^{44, 45} Note however that "giant-size administrative overheads in military industry seem to be an American specialty. The French designed and built the Mirage III with a total engineering staff of fifty design draftsmen. The Air Force's F-15 Program Office alone had a staff of over 240, just to monitor the people doing the work."⁴⁶

The extensive resources of the DoD also allow it to have ambitions that would be prohibitively expensive for other organizations. Thus, by 1965 the State managers of the Pentagon actually advertised for advice on how to "maintain world hegemony." The Army Research Office announced a public request for bids for a wide-ranging study on methods of achieving a Pax Americana. Here is the exact announcement as it appeared in the U.S. Department of Commerce Daily Bulletin asking for bids for government work:

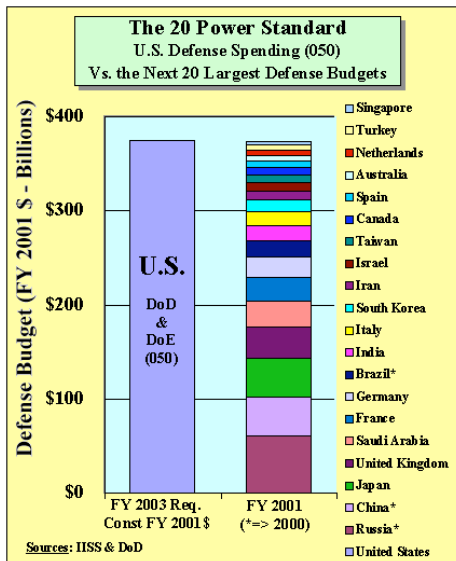
Service and materials to perform a RESEARCH STUDY ENTITLED "PAX AMERICANA" consisting of a phased study of the following: (a) elements of National Power; (b) ability of selected nations to apply the elements of National Power; (c) a variety of world power configurations to be used as a basis for the U.S. to maintain world hegemony in the future. Quotations and applicable specifications will be available upon request at the Army Research Office, 3845 Columbia Pike, Arlington, Va., until 1 May 1965.⁴⁷

With such high goals as “maintain[ing] world hegemony” it is not surprising that DoD budgets continue to grow rather than shrink.

These dismal tendencies have also been carefully documented by those inside the Pentagon. Franklin C. Spinney, a former staff analyst of the Department of Defense, has presented a number of important portraits of the military budgets of the United States in his testimony to Congressional committees in 2002.⁴⁸ The fiscal year 2003 budget of the DoD, said Spinney, “would be higher than that averaged during the Cold War, when America faced the threat of a nuclear-tipped Soviet superpower instead of a criminal network of terrorists funded by a fanatical anti-American Saudi millionaire.” He shows how patterns of mismatch between plans and reality have the effect of misrepresenting the future consequences of current decisions owing to a bias to underestimate future costs. This creates a constant pressure to implement new increases in budgets – even while the ink on current increases is still wet.

Addressing “Defense Power Games”, Spinney indicated that, “a repetitive bias to grossly understate future costs is typical of programs in the early stages of their acquisition lifecycles”. Thus, “the early plans predicted that the 400th F-18A [a navy fighter] would cost about \$20 million, but it actually cost about \$41 million.” He called attention to a number of biases that reflect what he terms a “ubiquitous two-step bureaucratic gaming strategy, known as Front Loading and Political Engineering.” Spinney notes that, “these strategies are explained in detail in a report that can be downloaded from the internet.” There is a regular pattern of behavior here, he points out. Part A is a mismatch between plans and reality. Part B really gets down to business – “Brutally stated, the aim of this gaming strategy is to turn on the money spigot and lock it open.”

You don’t have to be a specialist to go along with Spinney as he asks, “how much spending is enough? – accounting for the external threat”. Any ambiguity that these questions might ordinarily pose is totally dispelled when you turn to Spinney’s bar graph (“The 20 Power Standard”). It takes the 20 next largest national defense budgets put together to match the U.S. level of spending.



What is all this about? According to Spinney, the Congressional Budget Office has concluded that “policy changes to Social Security and Medicare (read changes to reduce expenditures per capita) would be needed, because under current policies ‘... federal deficits are likely to reappear and eventually drive federal debt to unsustainable levels,’ once the baby boomers start collecting social security and Medicare. If those programs are not changed, CBO concluded in January 2002, decision makers will face the prospect of approving steep tax increases, big cuts in other government spending, or large budget deficits.”⁴⁹

The Pentagon has undercut funding for Social Security and other programs in a second manner. According to a General Accounting Office (GAO) report, “More than 27,000 military contractors, (1 in 9) are evading taxes and still continuing to win new business [from the Pentagon]...” The report continues: “The tax cheats owed an estimated \$3 billion at the end of the 2002 fiscal year, mainly in Social Security and other payroll taxes that were diverted for business or personal use instead of being forwarded to the government, actions that could bring criminal prosecution.” Senator Norm Coleman—the chairman of the Senate Permanent Subcommittee on Investigations—stated that, “The Pentagon needs to start targeting more firepower on the management side on fraud and abuse in the system, and go after the thousands of defense contractors that routinely renege on paying their taxes.” The G.A.O. found that the DoD could have collected \$100 million in 2002 from these tax evading firms, under the Taxpayer Relief Act of 1997. However, “in the six years since passage of the legislation to do such levying, the Defense Department has collected only about \$687,000...”⁵⁰ The Pentagon managers—assured of unlimited funding for their own projects—have seen no reason to prevent military contractors from cheating both the nonmilitary branches of the federal government and U.S. taxpayers.

The non-partisan citizen’s lobbying group *Common Cause* has provided us with a good example of how Pentagon influence has superseded Congressional powers and obligations to regulate defense spending to restrain fraud by Pentagon contractors.

Congress in its final Iraq spending bill did not even include language offered by Senator Patrick Leahy (D-VT) to penalize war profiteers for defrauding American taxpayers. The Senate Appropriations Committee unanimously approved a provision to ensure that contractors who cheated the American taxpayer would face fines of up to \$1 million and jail time of up to 20 years. Senators of both parties supported the provision, but Republican House negotiators refused to include the language in the final bill.⁵¹

THE “OPPORTUNITY COST” OF MILITARISM

As former Pentagon analyst Franklin Spinney predicted, without ambiguity, the consequences of proposals to greatly increase the defense budget. Spinney said such moves are, “tantamount to a declaration of total war on Social Security and Medicare in the following decade.”⁵² He has also reminded us that in all but a handful of states Department of Defense dollars account for by far the majority of Federal dollars spent in each state. If money talks then the Pentagon clearly has the loudest voice by far.

The numbers involved are staggering. We can calculate the overall opportunity cost of a half century of militarism as follows: “The operation of a permanent war economy entails large continuing costs for American society, measured in terms of what has been forgone in order to build and operate an immense military system.”⁵³ From 1946 to 2001 the combined budgets of the Department of Defense were \$17.9 trillion (in 2001 constant dollars). \$17.9 trillion equals the value of every private building existing in the United States in 2001.⁵⁴ In other words, the resources devoted to the DoD from the end of World War II until 2001 were large enough to duplicate all commercial and residential structures, (every skyscraper, factory and house) that was present in the U.S. in 2001. The decay in areas such as roads, bridges, schools, housing, energy production & transmission, public transportation, drinking water, and toxic waste cleanup represents items crucial for life that were passed up because the funds were spent on the military system instead. This allocation of resources to militarization has also distorted the development of individuals and institutions, effects that I described in *The Permanent War Economy*.

When the investment in fresh educational competence, at whatever level, is subsequently applied to nonproductive economic activity, then once again the community loses the potential economic gain from human competence that ordinarily accrues to it when that capability is applied to productive work.

A second major form of impact of the military on the civilian economy is a process of industrial deterioration that generates uninvestable capital and unemployable labor. An unprecedented phenomenon has appeared in the United States: the formation of a large network of depleted industries and a flight of capital from the country. (Chapter Three will give details on “depleted” industries: those that have lost capability for serving all or part of their domestic markets and have been replaced by foreign producers because of a combination of technical, managerial and economic deterioration.)

Many theorists of capitalist economy, especially those in the Marxist tradition, have sought to explain recurring problems of capitalism as a result of the tendency of a business-based economy to generate surpluses

of capital and surpluses of labor. Uninvestable capital and unemployable labor were certainly fundamental features of what happened in the United States during the Great Depression, 1929-39. The World War II economy soaked up surpluses of capital and of labor.⁵⁵

Today, surplus capital in the U.S. is long gone and surplus labor is now the product of deindustrialization.

THE NUCLEAR ARSENAL

By far the single most complicated and costly U.S. military program of the 20th century has been the drive for production and use of nuclear weapons. Everyone knows that modern weapons have capability for vast destruction. Nuclear weapons that are now in place could conceivably destroy all of mankind.

For the purpose of appreciating America's War Economy, two central features of military power require identification here: first, the scale, cost and consequences of nuclear weapons and second, the nature of guerilla warfare.

Looking back at the cost of nuclear overkill, as I did in *After Capitalism*, yields some further sobering statistics:

"During a long span of the cold war, from 1940 to 1996, U.S. military outlays totaled about \$17 trillion, measured in dollars of 1996 purchasing power. Of this amount, \$5.8 trillion was spent on nuclear weapons. This includes research, testing, production, delivery systems, command, control and early-warning networks, defense against nuclear attack, and the management and disposition of nuclear waste. *Over the course of fifty years, the government produced more than 70,000 nuclear explosives.*

"There is surely this real limit to military power: a person or community can be destroyed only once. We need reminding that Hiroshima was ravaged on August 6, 1945, by a single nuclear explosive with a power of 15,000 tons of TNT. About 140,000 were killed by that single blast.

"Consider, as purely hypothetical nuclear targets, the combined present populations of Russia and China: 1,351,000,000 or the equivalent of 9,650 Hiroshimas of 1945. Using the Hiroshima yardstick, warheads with the combined power of 144.7 million tons of TNT (9,650 X 15,000 tons) would be required to destroy these two countries. (As the nuclear planners would remind us, selection of warhead sizes and dispersion would have to take into account that blast effect does not increase proportionately with size.) If we allow for an additional 30 percent to account for possible launch and warhead failures, 188.2 million tons of TNT would be needed.

"What is the size of the current nuclear arsenal? The United States now deploys warheads with the power of some 2.3 billion tons of TNT. Thus, the 188.2 million tons required to destroy both Russia and China is merely 8 percent of the power of the active U.S. nuclear arsenal. The remaining 92 percent represents a vast reservoir of excess killing power and military spending, or in the language of nuclear strategy, overkill."⁵⁶

Prior to the invention of nuclear explosives and their delivery systems, armed forces stockpiled bullets, shells and various forms of explosives which, on a one-to-one basis, could even exceed in number the military

personnel and the populations of possible enemy countries. Nevertheless, there were no efficient means by which these bullets, shells, etc., could be brought to bear on an opposing force or an enemy population with sufficient concentration to destroy all or virtually all of them. It is this critical element of concentration in time and place that was contributed by nuclear weapons. The destruction of Dresden at the close of World War II military operations in Europe was performed by hundreds of planes dropping thousands of explosives over many hours.⁵⁷ The destruction of Hiroshima and Nagasaki was done in each instance by one explosive carried by one plane, and was accomplished in a few seconds. This concentration of energy release now possible with nuclear explosives is well in excess of the amount required to destroy entire communities. This excess of destructive capability, new in human experience, required the invention of a new word, “overkill.” That invention implied that strategic military technology had become absurd. Weapons have been developed in kind and quantity to exceed any plausible estimate of requirement for destruction of armed forces and populations.⁵⁸

Nevertheless, for the top managers and officers of the U.S. military establishment, the American nuclear weapons stockpile is not at all absurd. For the getting and practicing the use of these weapons has been the justification of their working lives.

Two nuclear explosives, by destroying Hiroshima and Nagasaki in August 1945, played a decisive role in compelling the surrender of Japan and ending the Second World War. Thereafter, until this writing in 2004, there was no further military use of nuclear weapons. Nevertheless, the U.S. government now retains about 10,650 nuclear warheads and a great variety of associated technologies in the form of control and delivery systems.* These have ranged from nuclear warheads designed to be hand carried or Jeep delivered, onto warheads to be delivered by multi-billion dollar vehicles like aircraft carriers and submarines, and earth circling aircraft.

The cost of nuclear weapons invites a many-sided calculation: the budgets of the federal agencies that sponsor research, design and production of nuclear warheads; the development and fabrication of diverse delivery systems; the costs of educating, training and maintaining the labor force required for federal agencies that sponsor research, design and production of nuclear warheads; the development and fabrication of diverse delivery systems; and the costs of educating, training and maintaining the labor force required for competent performance of these diverse functions.

Despite the apparent extensiveness of this enumeration, it falls short of measuring the costs to the wider community that are owing to wide-ranging military-nuclear operations. These wider costs are made visible as “opportunity cost” – money valued assessments of what has been foregone for the wider community owing to using up vast resources for researching, designing, fabricating and operating the main parts of the nuclear military technologies and their manpower forces.**

Despite the end of the Cold War in 1991 and the shift to a global “War on Terror” since 2001, the Bush Administration intends to further increase the nuclear overkill, as seen by the

* Natural Resources Defense Council estimate.

** In my book *After Capitalism*, I offered an estimate of the many-sided opportunity cost of U.S. nuclear weaponry. See Chapter 5.

FY 2004 National Nuclear Security Administration nuclear weapons budget request of \$6.38 billion.⁵⁹ Now, the Bush Administration is claiming that we have a *penetration gap*. They say the U.S. ability to destroy subterranean facilities which we know or imagine contain or control Weapons of Mass Destruction is severely lacking. Supposedly new, usable Earth Penetrating Weapons are needed. These weapons penetrate the ground above the target before exploding. Current Earth Penetrating technology (the 80 kiloton *B61-11*) penetrates 10 ft into hard rock and the explosion will produce damage down to a maximum of 400 ft.⁶⁰ The administration has expressed an interest in low-yield Earth Penetration Weapons because of their presumed ability to destroy deeply buried targets while reducing the damage done to the surrounding population from blast and fallout.

There is a contradiction, however, between the two requirements of damaging hardened targets and minimal “collateral damage”. “EPWs, sufficient to damage hardened buried targets at even moderate depths, cannot penetrate nearly deep enough to achieve substantial containment of the radioactive debris created by their detonation. This ‘fallout’ actually increases with the increasing depth, due to the greater volume of earth lifted by the blast.”⁶¹ So much for the rhetoric of “high tech”, hygienic postmodern warfare.

A LESSON ON COST MAXIMIZING

These various threads come together in a cautionary tale I recorded twenty years ago. Little has changed since then.

A young engineer was employed by an aerospace firm and assigned the task of preparing cost and price estimates for new products on which the firm would submit bids to the Department of Defense. For this work he was expressly prohibited from having any access to or communication with the accounting department. Neither was he permitted to read any of the firm’s own internal accounting reports. Hence, he had no information available on the details of previous costs of similar work. On the face of it this is preposterous. How do you go about preparing cost and price estimates without access to cost data? The management wanted no critical assessment of the components of total cost. A restriction of this kind would be unthinkable in any rational, cost-minimizing, business firm.

Our young engineer in this aerospace firm proceeded to prepare price estimates, using prices (not costs) of former products of his own firm, prices of aircraft products of other firms, and occasional information obtained informally from inside competing firms. This sort of job requirement proved to be unnerving to the engineer in question. He had been trained to apply techniques for engineering costing that required a critical assessment of every factor used in production. He resigned.

The industrial engineer develops the cost of each element by considering not only the actual experience of the enterprise in making a similar product, as recorded by the accounting department, but *possible alternative methods for each element of cost*. Ordinarily, then, the task of engineering costing is to tell the management what something *should cost*, using the best available methods. Obviously, in the performance of this function the actual costs previously incurred (historical costs) are only a starting point. For the industrial engineer is charged with seeking out the minimum possible cost, not with simply repeating previous practices.

From about 1961, under Robert McNamara, President Kennedy's Secretary of Defense, military-industry firms were required to use historical price information as a basis for future price estimates without necessarily diagnosing and evaluating the separate costs that build up to the price. Engineer-ing costing is essential if one is trying to minimize costs. Historical costing, based upon past prices for price bidding, contains a built-in escalator for increasing costs and prices.

When Robert McNamara was installed as Secretary of Defense in 1961, (he held the office until 1968) bilking of the public treasury by the military-industrial complex was supposed to change. Cadres of men trained in the techniques of statistical analysis and managerial control were recruited for top positions at the Pentagon for the purpose of designing and operating the largest industrial central office in the world.⁶² The new Pentagon chiefs formalized control methods that were appropriate to the task of regulating more than twenty thousand subfirms. They emphasized the introduction of analytical methods and standardized computer routines. In combination, these control techniques were supposed to yield "cost effective-ness" in the military-industrial system.

From a statistical point of view, behavior is "under control" when it varies within predictable and acceptable magnitudes.⁶³ In the world of military economy, "under control" has meant control around a rising average trend where the rising costs are incorporated as an inherent part of the price process. By accepting the historical record as a given condition, the Pentagon management perpetuated rising costs without deter-mining whether the rising cost "history" was necessary—or why there is rising cost at all, especially since many technological-improve-ment options have tended to reduce costs. Following a lengthy and heated dispute between the advocates of "engineering costing" and "historical costing", the latter method was formally designated as preferred procedure.

In October 1965 the Air Force Systems Command formalized these methods by publishing a manual entitled *Cost Estimating Procedures*. In the section headed "Estimating Methodology," the following instruction is given for cost estimating on new products: "The estimating methods are based on projections from historical data. Historical data are used to project future costs." The manual stipulated that the industrial-engineering approach to cost estimating was prohibited.⁶⁴

For the military-industry enterprise, higher costs mean more activity, more facilities, more employees, more cash flow, and a larger cost base for calculating profits. For the military-industry top managers in the Pentagon, cost increases in the subfirms denote more activity under their control and are the basis for enlarged budget requests to the Congress. There is no built-in limitation on the cost-maximization process. The limits are external: the political acceptability of Pentagon budgets to the Congress and to the population as a whole.

Also, from a national economic vantage point, the McNamara-type methods and their results were entirely justified by the standards of the ideological consensus as contributing to the disbursement of government funds, thereby creating job opportunities. In these ways the cost- and subsidy-maximizing aims of industrial firms and the goals of the Pentagon managers for enlarging their decision power became mutually complementary and mutually supporting.

Indeed, Pentagon chiefs applied punitive measures against men whose offense was to try to introduce and practice well-known methods of cost-minimization in the military economy and who, as a last resort, spoke out publicly against the outrageous avarice of leading military-industry firms.

Principal names that come to mind are Ernest Fitzgerald (Air Force) and Gordon Rule (Navy). As senior civilian officials responsible for cost management, both were subjected to

professional victimization for no other reason than their effort to restrain the cost maximization process in military industry. In Fitzgerald's case President Nixon announced that he had himself passed on the decision to fire him. Ernest Fitzgerald's professional autobiography, *The High Priests of Waste* (Norton, 1972) is a unique account of the experience of trying to apply ordinary industrial criteria of efficiency in military industry.⁶⁵

"Who cares about the cost?" is one of the common themes among product developers inside military firms. If the product is more complex, it costs more and justifies a higher price; all this is called "gold-plating" in the trade. In one major enterprise the product-development staffs engaged in contests for designing the most complex, "Rube Goldberg" types of devices. Why bother putting brakes on such professional games as long as they can be labeled "research," charged to "cost growth" and billed to the Pentagon? Obviously, the military is penalized by receiving unreliable equipment—devices that are too complex, requiring hard-to-find skilled maintenance talent and prone to malfunction. But that is in the realm of unintended consequences.⁶⁶

Capital, both fixed and working capital, is made available to military-industry firms in ways that are unthinkable for the civilian-industry enterprise. The Pentagon is empowered by law and its own regulations to supply not only buildings and equipment but also advance grants of funds, progress payments on work in process (but before delivery), and guarantees on loans that might be obtained by the military-industry firm from a private bank or similar institution. By these means the military-industry firm has access to quantities of capital under conditions that cannot be matched by a civilian-industry firm.⁶⁷

At the end of the 20th Century, the ambitions of the Pentagon rose to new heights. For example: a new aircraft design program was launched – the Joint Strike Fighter with a prospective outlay of \$750 billion. The new plane would be used by all branches of the U.S. military and also by many other nations. By the start of the 21st century there had already been a half-century of experience with new Pentagon programs in the multi-billion class. These had become characteristic of U.S. military programs that have been launched without regard to what is foregone.

Every so often, the American public gets a glimpse of the topsy turvy world of production management in military industry. In the 1970s, it was the CS transport plane that attracted controversy.

The quality of production management in military industry and the quality of its products are for the most part inaccessible to outsiders. However, the performance of the Lockheed Company, the largest military-industry firm, was partially opened to public view, especially with respect to its work on the important C-5 airplane. These aircraft, originally designed to carry heavy equipment or large numbers of soldiers over intercontinental ranges, were supposed to cost about \$29 million per plane and have wound up at prices of \$62 million per plane and more. We are informed that the C-5 had suffered a major technical breakdown once an hour during every hour of flight time. The unenviable pilot of the giant jet should anticipate, according to the General Accounting Office, that his landing gear alone will fail once every four hours. One of the planes already accepted by the Air Force and picked at random by the GAO auditors for inspection had 47 major and 149 minor deficiencies. Fourteen of the defects, the GAO reported to Congress, "impair the aircraft's capability to perform all or a portion of six missions" assigned to it.⁶⁸

The Lockheed saga includes the experience of Henry Durham, a former production manager at Marietta, Georgia, who tried to bring to the attention of Lockheed top management what he had discovered after being assigned as general manager for all production-control activities on the flight line. Durham has reported:

“When planes arrive at the flight line of the assembly line they’re supposed to be virtually complete except for a few engineering changes and normal radar and electronic equipment installation, but I noticed these serious deficiencies. These weren’t just minor deficiencies; these aircraft were missing thousands and thousands of parts when the Lockheed records showed the aircraft to be virtually complete. At first I thought it was an error in the papers. Then I initiated an audit. I found it was true. I was amazed. But I still thought there was some kind of mistake going on. Later I figured out what was happen-ing was the company was consciously indicating through the inspection records that they had done the work so that they could receive credit payment from the Air Force when actually they weren’t on schedule and hadn’t done the work.”⁶⁹

The reasons for coddling military firms can be found in an exchange between Senator William A. Proxmire and Secretary of the Treasury John B. Connally on June 8, 1971, as the Senate Banking Committee was considering guaranteeing a \$250-million loan to the Lockheed Corporation.

Senator Proxmire: ... I would remind you in a subsidy program it is different, there is a quid pro quo. You make a payment to a railroad and in return they build trackage; you make a payment to an airline and they provide a certain amount of service for it. In welfare, of course, you make a payment and there is no return. In this case we have a guarantee and there is no requirement on the part of Lockheed to perform under that guarantee. A guarantee of \$250 million and no benefit, no quid pro quo.

Secretary Connally: What do you mean, no benefit?

Senator Proxmire: Well, they don’t have to perform.

Secretary Connally: What do we care whether they perform? We are guaranteeing them basically a \$250 million loan. What for? Basically so they can hopefully minimize their losses, so they can provide employment for 31,000 people throughout the country at a time when we desperately need that type of employment. That is basically the rationale and justification.⁷⁰

How much has changed in thirty years? You guessed it: not much at all.

The recent fortunes of the Boeing Company illustrate core characteristics of how the military economy firm actually works. During 2002, Boeing had received \$19.6 billion in government contracts. In support of such results, the Boeing management spent \$3.8 million for lobbying of various sorts and made campaign contributions to members of Congress amounting to \$1.7 million.⁷¹

The Boeing Company had been in internal transition toward ever-greater dependence on U.S. government contracts for its revenue. During recent years the Airbus Corporation of

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Western Europe had proven itself able to out-compete in designing and finally shipping commercial aircraft. Another part of Boeing's corporate redesign was its plan for greater dependence on design engineers located abroad. By 1993 the *Wall Street Journal* of March 17th reported that "as Boeing thins the ranks of its U.S. engineers, the aerospace giant is shifting professional design and engineering work abroad. A few years ago Boeing hired, through a subcontractor, 300 Japanese engineers for its biggest airplane project, the 777. Then last year, Boeing said it planned to hire hundreds of engineers in Taiwan and Russia."

Evidently the Boeing management's lobbying, campaign contributions and desperate efforts to obtain proprietary information from competitors – was insufficient to offset the Airbus firm's competing design and production capability. Eventually Boeing's strategic plan for selling and leasing \$100 billion worth of refueling tankers to the Air Force was rejected by Congress. Senator John McCain, an Arizona Republican, pulled no punches in his assessment of Boeing management, saying, "this had already been revealed to be a corrupt if not terribly flawed program...". Neither was Boeing management's position improved by the report that "among those who promoted the tanker deal were Richard N. Perle, a top Pentagon advisor who is a member of the Defense Policy Board. Mr. Perle also runs an investment firm in which Boeing invested \$20 million last year, and on August 14th he co-wrote an op-ed article titled "Gas Stations in the Sky" in the *Wall Street Journal* in which the Air Force would have leased all 100 tanker aircraft from Boeing."

The Boeing Corporation has focused on aggressive methods for financial accumulation rather than solving the problems of running a stable production system.

At Columbia University from 1961 to 1990 there was a yearly seminar on problems of conversion of industry from military to civilian economy. We sought out managers, engineers and others from military industry to tell us about various efforts by their firms to enter civilian fields. The typical story was failure, traceable to one or another style of operating that was just fine in the military economy but economically lethal in the civilian arena.

The military-industrial firm is controlled by the central administrative office in the Pentagon. Considerable detail on this institution is available in *Pentagon Capitalism*. Anyone interested in industrial organization will find the details on *The Armed Services Procurement Regulations* fascinating reading.⁷² These are not, as the name seems to imply, a set of purchasing regulations. Rather, they are rules formulated by Pentagon management for the guidance of the central-office staff itself and the guidance of Pentagon-serving firms.

The extent of the Pentagon's control apparatus is indicated by the fact that in one important military-industry firm a staff of 210 Pentagon employees is in permanent residence, in addition to a group of ten military officers representing the armed-service branch primarily served by the firm in question.

This, then, is the nature of the U.S. state corporate regime and its permanent war economy. Without formal announcement, including American experience during a half-century of cold war and hot wars in Korea and Vietnam, the government of the United States was revised into a form not anticipated by any act of Congress or textbook on American government. Corporate managers were mobilized to operate a continuing war economy while accumulating resources without equal in other parts of the government. The drive for profit was matched by a drive for power over whole populations. Thereby, much of the American economy was transformed, without debate or formal announcement, into a species of state-capitalism, with the establishment of a war economy as its primary component. Once we understand clearly the costs of this way of doing business, we can begin working to change it.

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 "When I left government my DoD [Defense Department] clearance followed me in a matter of days to a few weeks. I also happened to need AEC clearance. This took nine months and had to be done twice because after the investigation was completed it was found that for one or two years during the war the investigation had been made by Army Intelligence instead of by the FBI, and AEC rules had been changed to require that everything be done by the FBI. So the whole business started all over again, doubling the time and expense and involving the FBI people going back to the same people they had talked to earlier and shamefacedly asking them the same questions."
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Chapter 2 – Hatching Wars Without End

In the 21st century, the Bush administration has displayed broad lists of over sixty countries where the terrorist group “Al Qaeda” is presumed to be active and hence U.S. military intervention may be required. Waging the *war on terror* has been substituted for the Cold War *containment of communism* as the rationale behind the latest invasions. This drive for U.S. world hegemony has been waged for over half a century.

A reader who has not been alert to the idea that the U.S. government has been on a drive for unlimited hegemonic power may not recall the frequency and scale of U.S. military operations since the close of World War II. So here is a partial roster of wars, large and small operated by the U.S. government since then:

PHILIPPINES (1948-54) CIA directs war against Huk Rebellion.

KOREA (1951-53) U.S. & South Korea fight China & North Korea to stalemate; Atomic bomb threat in 1950, & vs. China in 1953.

IRAN (1953) CIA overthrows democracy, installs Shah.

LEBANON (1958) Marine occupation against rebels

VIETNAM (1960-75) Fought South Vietnam revolt & North Vietnam; 1-2 million killed in longest U.S. war; atomic bomb threats in 1968 and 1969.

CUBA (1961) CIA-directed exile invasion fails.

INDONESIA (1965) Million killed in CIA-assisted army coup.

GUATEMALA (1966-67) Green Berets intervene against rebels.

CAMBODIA (1969-75) Up to 2 million killed in decade of bombing, starvation, and political chaos.

LEBANON (1982-84) Marines expel PLO and back Phalangists, Navy bombs and shells Muslim and Syrian positions.

PANAMA (1989-90) Nationalist government ousted by 27,000 soldiers, leaders arrested, 2000+ killed.

IRAQ I (1990-2003) Blockade, air strikes; 200,000+ killed in invasion of Iraq; no-fly zone, large-scale destruction of Iraqi military.

SOMALIA (1992-94) U.S.-led United Nations occupation during civil war; raids against one Mogadishu faction.

AFGHANISTAN I (1998) Attack on former CIA training camps used by Islamic fundamentalist groups alleged to have attacked embassies.¹

AFGHANISTAN II (2003-present) Invasion and occupation following 9/11 attacks. Taliban regime toppled. Hunt for Osama bin Laden remains unsuccessful. Estimated 3,485 Afghan civilians killed and 6,273 seriously injured as of July 2004.²

IRAQ II (2003-present) Invasion of Iraq by 140,000 soldiers to topple Saddam Hussein, followed by occupation and violent insurgency. 26,568 Iraqi civilians killed and 47,822 seriously injured as of August 2005.³

THE U.S. PREFERENCE FOR MILITARY ENGAGEMENT

The Department of Defense and other proponents of U.S. wars like to speak as though the U.S. wages war only as a last resort. The histories of both Vietnam and Iraq show that non-military, diplomatic procedures were available for resolving disputes with the U.S. and were rejected in both cases. Tragically, these peaceful options were spurned by top U.S. government executives.

“Vietnam, rather than being the exception, is the pattern for the future.” This forecast was made in July 1966 by the editors of *Armed Forces Management*, a Washington-based military trade journal. The editors wrote further: “Reasoning that poverty breeds violence, defense planners expect the incidence of conflict to increase in the future and be concentrated in the Southern Hemisphere – in Africa, along the littoral of the Asian subcontinent and in South America. While the United States eschews the role of global gendarme, it will help those nations, which ask for its help. The prospects then are more American involvement in some of the most primitive areas of the world.”

This prognosis was shared by the Department of Defense, which was planning for U.S. participation in future wars of intervention. In his 1966 and 1967 statements to the Congress on budgets and defense programs, Secretary of Defense McNamara discussed prospects for internal wars in various parts of the world, including Laos, Thailand, Burma, Indonesia, Iraq, Venezuela, Colombia, Bolivia, Guatemala, Uruguay, the Philippines, Nigeria, the Congo, Ghana, Uganda and Burundi. The Secretary of Defense stated that civil wars in these countries would require military intervention by the United States, akin to U.S. actions in Vietnam.⁴

At one point in their quite separate histories, Ho Chi Minh, for Vietnam, and Saddam Hussein, for Iraq, each sought political accommodation, a *modus vivendi*, with the United States government.

By the end of World War II in 1945, Vietnamese nationalists had fought Japanese and French conquerors. Iraq, at the end of the 20th century, had been bloodied by wars with Iran and a failed attempt at conquest of Kuwait. Ho Chi Minh in Vietnam and Saddam Hussein in Iraq, judged that their ambitions for economic development would be frustrated by further war making. In order to avoid conflict with the vastly superior U.S. military, both leaders proposed major changes in their relations with the U.S. Both were rebuffed by the U.S. government, which had chosen instead to dictate terms after achieving military domination.

On February 16, 1946, Ho Chi Minh addressed the U.S. in a letter to President Truman. He offered an account of the decades-long struggles of Vietnamese nationalists for independence, and concluded with a proposal to the U.S.:

What we ask has been graciously granted to the Philippines. Like the Philippines our goal is full independence and full cooperation with the United States. We will do our best to make this independence and cooperation profitable to the whole world.

I am, Dear Mr. President,

Respectfully yours,

Ho Chi Minh ⁵

President Truman did not reply, or even acknowledge, Ho Chi Minh’s proposal.

Now in 2004, we learn that Saddam Hussein too had sought a political accommodation with the U.S., in this case by means of “back channel” approaches to the U.S. government.⁶

In February 2003 Hassan al-Obeidi, chief of foreign operations of the Iraqi Intelligence Service, met with Imad Hage, a Lebanese-American businessman in his Beirut office. Mr. Obeidi told Mr. Hage that Iraq would make deals to avoid war, including helping in the Mideast peace process. He said, "If this is about oil, we will talk about U.S. oil concessions... If this is about weapons of mass destruction, let the Americans send over their people..." Mr. Obeidi said Iraq could agree to hold elections within the next two years. Further, Tahir Jalil Habbush, Director of the Iraqi Intelligence Service, in a showing of cooperation and concession to President Bush, offered to hand over to the U.S. Abdul Rahman Yasin who had been indicted in the U.S. in connection with the 1993 World Trade Center bombing.

These proposals were passed on to senior Pentagon officials including Richard N. Perle, an influential Pentagon advisor. Perle, said *The New York Times* account, sought authorization from the C.I.A. to meet with the Iraqis, but the U.S. officials declined to pursue this channel saying they had already engaged in contacts with Baghdad. Said Perle, "The message was 'Tell them that we will see them in Baghdad.' " *The New York Times* reporting included no indication of State Department activity with respect to these Iraqi overtures that apparently had the approval of Saddam Hussein.⁷

In Vietnam, and again in Iraq, the U.S. government preferred to seek power by military means. The Vietnam War cost the lives of 58,000 U.S. servicemen & women. The Vietnamese suffered millions of dead. The toll of deaths and grave injuries taken in Iraq increases daily.

In both Vietnam and Iraq the American government chose war over diplomacy despite the high cost of military operations, both in lives and money. The power extension allowed by the war—including the construction of new military bases abroad—was ample reward. There was also a windfall for the companies supplying military goods and services, Halliburton being a major beneficiary from the war in Iraq. In 2000, the Pentagon's "Base Structure Report" accounts for more than 512 U.S. bases on foreign soil. These bases project U.S. military might into additional foreign lands, preparing for future engagements, and thereby increasing the power of the DoD and the White House.

PLANTING BASES WORLDWIDE

From the middle of the twentieth century until 2004, U.S. wars in Vietnam and Iraq have played a central part in the drive by American state-corporate managers to extend their hegemonic* control. The U.S. war in Vietnam lasted for 15 years and U.S. military operations in and around Iraq, at this writing, have continued for more than ten years. These wars are now being used as the rationale for Pentagon planning of elaborate new military bases and power extension.

What is the cost of wars without end?

The United States military operation in Vietnam sought to overcome the political support of the National Liberation Front by means of high-technology-applied destructive power. U.S. forces spent \$1.8 billion on heavy-construction programs in Vietnam, including about 1,500 separate projects: 6 new deep-water ports; 8 shallow-draft ports; 8 jet air bases; 80 auxiliary airfields; hundreds of miles of pipelines and roads; barracks for more than 600,000 men. At peak, the United States contractors operated

* hegemony – Leadership, preponderant influence or authority, esp. of a government or state – hegemonic, adj. *Webster's New Collegiate Dictionary*, G. and C. Merriam Co., 1949.

enough earth-moving, construction, and concrete plants to dig the Suez Canal in 18 months and surface the New Jersey Turnpike every 30 days; a new “Pentagon West” housed the general staff; the Cam Ranh Bay harbor development cost \$110 million and the allied depot was slated to be the largest in the world, with 3 million square feet of covered and open storage space.⁸

All told, the U.S. spent about \$400,000 per enemy killed.⁹ Clearly, the technological and military resources expended in Vietnam were governed by the understanding that “money is no object”.

Currently the bill for the war in Iraq is running at more than \$200 billion.¹⁰

TOWARD HEGEMONY IN CENTRAL ASIA AND BEYOND

In a highly informative dispatch to the *Washington Post*, February 9, 2002, Vernon Loeb reported on the expanding array of U.S. military bases in Central Asia.

BISHKEK, Kyrgyzstan -- In a remote corner of Central Asia, in a country that didn't even exist a decade ago, the U.S. Air Force is building a base that within months will be home to 3,000 personnel and nearly two dozen American and allied aircraft ...

... It embodies what senior U.S. defense officials say is a major commitment to maintain not just air operations over Afghanistan for the foreseeable future but also a robust military presence in the region well after the war...

“I think it's fair to say there will be a long-term presence here well beyond the end of hostilities,” said Air Force Col. Billy Montgomery, commander of a team of engineers, technicians and planners that is proceeding apace with construction of a tent city, surgical ward, gym, hot showers and kitchen facilities at the airport...

...U.S. officials say the deployment of American forces eastward from the Gulf to the doorstep of China since Sept. 11 also underscores a significant shift in the Bush administration's thinking about the role of the military in projecting American power...

...“America will have a continuing interest and presence in Central Asia of a kind that we could not have dreamed of before,” Secretary of State Colin L. Powell told the House International Relations Committee on Wednesday. [Feb 6, 2002]”

Agreements for establishing or using preexisting bases were also made with Uzbekistan, Tajikistan, Pakistan, Oman and Kuwait.

... more than 50,000 U.S. military personnel now live and work on ships and bases stretching from Turkey to Oman and eastward to the Manas airport, 19 miles outside of Bishkek and 300 miles from the Chinese border.

...Manas ... is a functioning international airport with a long runway originally built for Soviet bombers, navigation aids that are up to

commercial standards, good fuel facilities and a large ramp for parking aircraft. ...

“I don’t see anything that we’re doing that indicates that we’re going to be here for three months,” [Air Force Brig. Gen. Christopher] Kelly said. “I see what we’re doing and the kind of guidance I’m getting from higher headquarters that indicate that we’ll be here for a long period of time. How long, I don’t know.”

The scale of this worldwide campaign is revealed in the three maps that follow. The first focuses on Afghanistan and is aptly titled, “Preparing For A Long Stay” (First published, Jan 8, 2002.)¹¹ The second map shows U.S. deployments in the array of countries in the Middle East and Central Asia.¹² The Central Asia base expansions locate U.S. military power within 300 miles of China. U.S. airpower is amplified by the aircraft and facilities on the island of Diego Garcia, a British military base island in the Indian Ocean that is shared with the U.S.

The third map is based on an aerial photograph of the U.S. military base at Al Udeid in Qatar. The second map of U.S. deployments locates Al Udeid airbase at the southeast corner of Arabia. This particular base has special importance as it includes two runways, each more than two miles in length, plus an array of storage and command facilities that are suited for a military command center for the whole Central Asia area. The Al Udeid base facilities are sufficient to equip the major part of an entire armored division. The implied strategy is that the troops can be readily flown in to a target area and could quickly take control and operate all the major equipment that otherwise would require a long period for transportation from the United States.¹³

The United States has been making improvements to several bases in and around Afghanistan as it prepares for a longer-term presence in the region.

10 NORTHERN ARABIAN SEA
U.S.S. JOHN C. STENNIS
U.S.S. THEODORE ROOSEVELT
Strike aircraft are taking off from
these two carriers.

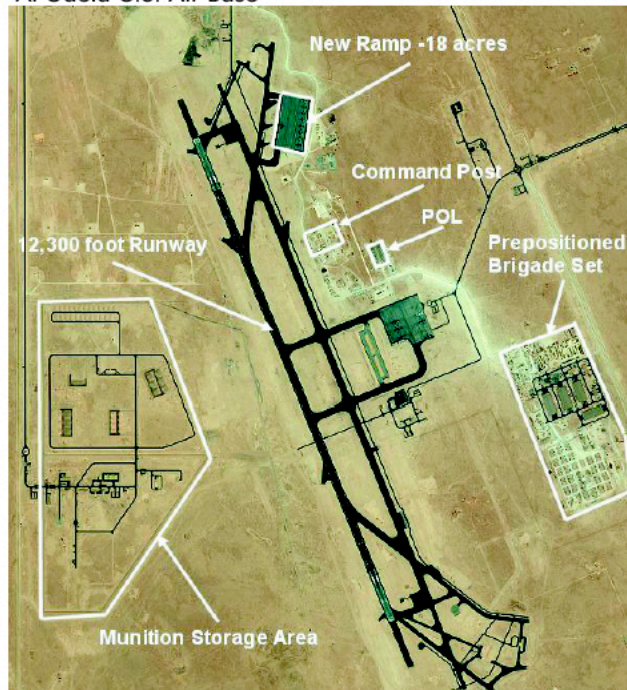


Heavy bombers, including B-52's and B-1's that are being used extensively in the bombing campaign

U.S. Deployments

[illegible]

Al Udeid U.S. Air Base



Source: Digital Globe June 13, 2002

These U.S. bases represent a huge investment and will not be abandoned voluntarily. For these bases allow the Pentagon to project ever more force over more territory and hence set the stage for numerous acts of regime change and their subsequent guerilla wars.

UNIFORMED FORCES AND CORPORATE WARRIORS

The Pentagon's *Directorate for Information Operations and Reports* gives us the following information on U.S. Active Duty Military Personnel as of March 31, 2003:

US Active Duty Military Personnel	
US and Territories	1,161,229
Total Europe	117,883
Total - Former Soviet Union	167
Total - East Asia and Pacific	98,624
Total - North Africa, Near East, and South Asia	17,279
Total - Sub-Saharan Africa	377
Total - Western Hemisphere	1,721
Total - Undistributed	17,237
Total Iraqi Freedom	269,363

But these “U.S. Active Duty Military Personnel” are not the whole military force that the U.S. government deploys directly. The other part are the “estimated 10-20,000 “private contractors” working overseas for the Defense and State departments, many of them in combat zones.”¹⁴ National Public Radio, on November 7, 2003 detailed some of the activity of “Private Military Firms” that have been operating with “an estimated \$100 billion a year in revenue.” “Private contractors,” NPR reported, “now help the U.S. military and State departments with everything from security and satellite mapping to laundry and food service.” NPR’s Eric Westervelt reported that “not all the jobs are mundane”... “DynCorp employees do everything from guarding Afghan President Hamid Karzai under a State Department contract, to making vaccines for smallpox and anthrax.”

Peter Singer, author of *Corporate Warriors: The Rise of the Privatized Military Industry* detailed for the first time many of the salient features of “the rise of the privatized military industry.” Indeed, the appendix to that book includes a listing of 60 Private Military Firms and their websites. His account of these firms even includes a detailed listing of the military equipment (and cost in U.S. dollars) for one of these firms engaged to fulfill a particular contract.¹⁵

The corporate warriors also take casualties that are rarely reported in the news accounts of U.S. military personnel. Thus, Mr. Westervelt reported that “slain contractors are not counted in the official tally of the U.S. war dead. We don’t know how many private contractors have died in Iraq, Afghanistan and elsewhere because the companies and federal agencies won’t disclose that.” Characteristically, reported Westervelt, (NPR) “The US State Department and DynCorp officials repeatedly declined to be interviewed on the record, saying the contracts don’t authorize them to talk to the media.”

As Charles Lewis, of the Center for Public Integrity observes: “We don’t have transparency, bottom line. In the 21st Century in the United States, we’re giving out ... billions of dollars in contracts and we don’t know who’s getting the money, how much it’ll cost and how many years it’ll take and what essentially they’re doing and even who are these people. We’re kept in the dark ... And the State Department, in six months of Freedom of Information requests, did not give us anything.”¹⁶

The invention of a privatized military industry, paid for by American citizens but not accountable to them at all, had an important start with President Kennedy’s anti-Castro Bay of Pigs effort. Military-political plans for the United States were aimed at being prepared for fighting “two and a half” wars at one time. Apart from a nuclear war, these were to include a conventional European war, as with the U.S.S.R., a Southeast Asian war and a lesser military engagement in Latin America (hence the one half). Under President Nixon these goals were revised downward to “one and a half” wars, in addition to a nuclear exchange. That was the military expression of the U.S. national policy goals that reached out for Pax Americana and “world hegemony.”

These confident estimates were shaken twenty-five years later by the failure to score a military win against the guerrillas and the armed forces of impoverished countries in Indochina. One of the major byproducts of the U.S. war in Vietnam was a greater readiness among many Americans to question the idea that unlimited military power was purchasable at will by the government of the United States.

But, since 9/11 this popular questioning of the privatization of the military and of the ability to deploy brute force against insurgencies has been deemed “unpatriotic”. If we forget the lessons of history, are we doomed to repeat them?

GUERRILLA WARFARE

Many nationalist and under-class revolts in less developed countries have relied on guerrilla warfare. Such tactics were also part of Europe's military effort against occupation forces during World War II; in Ireland the method was used against British rule. The history of guerrilla warfare indicates that *three elements determine the success of this technique: first, the existence of a group of indigenous people prepared to make major personal sacrifices on behalf of a common cause; second, support for the guerrilla fighters by a population or part of a government; and, third, the ability of the guerrilla forces to look like the noncombatants surrounding them.* Wherever these three conditions are met, the history of guerrilla warfare shows that no available military technology has been able to overcome the guerrilla forces militarily, regardless of the scale of military power that was applied—unless the occupying power employed the instruments of genocide and total population transfer. This has been the case where guerrillas have operated in small as well as large countries, and against opponents with a relatively moderate tradition of using military power, as well as against opponents with a tradition of using military power as a terrorist weapon. Guerrilla techniques have been successful against opponents with rudimentary as well as sophisticated military technology.¹⁷

During the last decades, major armed forces have been repeatedly frustrated by guerrilla-type operations that fulfill the three conditions noted above. This was also starkly revealed in the frustration of the German Army during the Second World War against the Yugoslav guerrillas, and by the frustration of British armed forces in their opposition to the guerrilla organization of the Irish Republicans.¹⁸

U.S. Forces were similarly frustrated during the Vietnam war, which caused many Americans to question the idea that unlimited military power was purchasable at will by the government of the United States. For example, initial predictions claimed that a few weeks of bombing in North Vietnam would end the war. However, the war continued despite daily American bombing that exceeded the tonnages in Europe during WWII. One of the “neoconservative” goals for the current war on Iraq has been to shake off the legacy of Vietnam. However, the laws of guerilla warfare will hold in Iraq just as they did in Vietnam.

THE LESSONS OF VIETNAM

There is no question that in every department of weapons technology, American armed forces in Iraq, as in Vietnam, enjoy overwhelming superiority.

By 1969, U.S. forces had bombarded North and South Vietnam with *3 million tons* of high explosives (80 percent in the South). This compares with 2 million tons of high explosives dropped during the Second World War in the European and Pacific theaters of operations combined. American soldiers in Vietnam carried six times the firepower of G.I.'s in the Second World War, and U.S. forces spent about \$400,000 per enemy killed (including 75 bombs and 150 artillery shells per corpse).¹⁹

The guerrilla opponent in Vietnam demonstrated military staying power despite the fact that he possessed few heavy weapons, no navy, no air force, and nothing like the technically elaborate military and industrial infrastructure that supported American and allied armed forces.²⁰

During the long Vietnam War, American armed forces did not stint on research and development for counter guerrilla operations. The array of new-weapon development to facilitate the counter guerrilla operations in Vietnam ranged from simple items like new lightweight weapons, footgear and protective clothing to elaborate devices to “smell” a possible opponent concealed in a jungle, antipersonnel bombs of diverse sorts with highly destructive effect, and the operation of great fleets of helicopters. The inability of the most elaborately equipped and research-supported armed force in the world to overcome the guerrilla forces of a small, poor country helps to define a limit on the capabilities of military technology.²¹

Even as there have been widespread complaints from the troops in Iraq that they lack basic equipment, the U.S. military has continued to pour money into high tech hardware. While U.S. troops were welding scrap metal onto their under armored Humvee vehicles, the American military has deployed robots “to detect and destroy remote controlled bombs that have been planted against troops and convoys ...” and spent \$5 million to buy 20 *packbot systems*, “small robots with acoustical sensors used to support missions against snipers”.²²

There is, however, only so much that technology can do. In *The Permanent War Economy* I stated that to overcome a guerrilla opponent, the elements of successful guerilla warfare, (a group that is motivated to die for their cause; support for the group among members of the population and; the ability of group members to blend in with the surrounding population) must be removed.

If the surrounding population is destroyed, then there is no “sea” in which the guerrillas can “swim.” In Vietnam the United States finally turned to removing or destroying the populations in areas under guerrilla control. The breakthrough to a new level of frightfulness in the pursuit of power in Vietnam is illustrated by the destruction of the countryside by bombardment and chemical defoliation and the concentration of Vietnamese peasants into towns and cities where they could be more readily controlled.^{23 24}

Early in 1965, I made a point of visiting the Secretary of Defense to call his attention directly, to the characteristics that make guerrilla warfare succeed, and to warn him of the prospect of a military “non-win” for U.S. forces in Vietnam, as a consequence of the “counter-insurgency” operations. It is important to understand why such analyses and the evidence supporting them were disregarded. On one count, the Pentagon directorate was confident that they could invent new military and social technology that would overcome the advantages specific to a guerrilla army. But a second factor was also operative: a will to succeed against guerrilla warfare that was so strong as to compel the operators of the U.S. war of intervention to overlook the inherent advantages of the guerrilla fighters and to seek to overwhelm them either in terms of numbers or

firepower or both. The Pentagon chiefs deceived themselves and the nation about U.S. military capability in Vietnam.²⁵

In *Pentagon Capitalism* I cited the 1964 case of mortar attacks conducted against U.S. air bases:²⁶

The military operations at that time, though small in scale and limited in number, gave the clue to the guerrilla form of the military-political method being used by the Vietcong. In 1964, various mortar attacks against U.S. air bases clearly came from populated farm areas. Subsequent search operations by South Vietnamese and U.S. forces failed to disclose any trace of the mortars, the men who carried them, or the containers in which mortar shells were transported to the site. The disappearance of these men and their materiel in that area, without a trace, was possible only because the population was shielding them. It was physically impossible to move these weapons into that area, mount them, fire them, dismantle them and move away without being visible to a considerable number of local peasants. Evidently, the local peasants preferred to protect the guerrilla operators.²⁷

These attacks bear a striking resemblance to those that took place in Iraq during November 2003.

The attackers used four donkey carts disguised as hay wagons to haul homemade multiple rocket-launchers close to several of the most heavily defended sites in the city, including the 20-story Palestine and Sheraton hotels on the banks of the Tigris River, and the Oil Ministry, which manages the resources on which Iraq's hopes for resurgent oil wealth depend. ...

The donkeys were tethered to trees, with the rockets inserted inside homemade launchers linked to car batteries and time-fuses, and hidden under hay. But these "contraptions," as one American officer called them, were armed with powerful battlefield rockets. Several feet long and as big around as a fire hose, they were said by American officers to have been either Soviet-made 107-millimeter or Brazilian-made 122-millimeter rockets, two types that were stockpiled by Mr. Hussein's army before the American invasion. They have a range of up to 10 miles.

Only luck appeared to have averted far more serious damage. At least 50 of the rockets failed to fire. Those that did struck with great force. Four holes as big as soccer balls were punched in the outer walls of the Palestine Hotel, throwing concrete chunks and glass into three upper floors and filling corridors with thick, grimy dust.

At the adjacent Sheraton, a rocket severed the cables of an external, glass-encased elevator and sent it plunging to the ground, smashing the glass roof of the atrium and sending shards showering into the lobby. Miraculously, there were no injuries.

An upper floor of the Oil Ministry caught fire, but there were no reported injuries in a building that, unlike the hotels filled with foreign journalists

and other outsiders, was virtually deserted at the start of a Muslim prayer day.²⁸

The three conditions required for successful guerilla warfare are reinforced when there is a population that is subjected to great oppression and deprivation in living conditions. This is precisely what has been taking place in Iraq.

Useful details are personally offered by Patrick Dillon, a former U.S. Army medic in Vietnam, now a filmmaker and writer, who visited Iraq during 2003. He calls attention to the fact that the city of Baghdad prior to the 2003 invasion had sixteen sewage treatment plants, of which fourteen were bombed out. Such plants require reliable electric power and chemicals by which sewage can be treated with chlorine. In the absence of this capability, 3 billion gallons of untreated sewage move into the Tigris River every day.

Drinking water is sold by the bottle and price gouging is a common practice. For the vast majority of people there's nothing left to drink but polluted water, therefore infectious disease spreads rapidly and there is a notable increase in infant mortality.

Dillon reports that the people of Baghdad are a population reduced to a stone-age economy – but without a state; therefore without an administrative machine to regulate even the most elemental conditions required for an orderly life. Dillon sums up the condition with the judgment that the population of Baghdad is being reduced to the image once formulated by Pol Pot for the people of Cambodia. Remember, this is being done to a population that had been taught that they were the inheritors of creators of modern culture – the written word and major branches of science and engineering.²⁹

There is no comprehensive estimate of the scale of Iraq's weaponry stockpiles available to guerilla forces. One indicator of what may be involved is related to the Iraqi government's official debt to the Russian government. Iraq owes Russia about \$8 billion (Associated Press, Dec 22nd, 2003). It is likely that the debt owed to Russia was mainly for the purchase of weapons of every sort produced by the Soviet military industry.

"The CIA has estimated that the weapons dumps found so far in Iraq hold 600,000 tons of all kinds of ammunition and weapons." The Iraqi government's weapons dumps have also included "several hundred shoulder-fired missiles, many in weapons dumps the location of which remain secret." ... "The American military is pressing the search for the missiles, offering a reward of \$500 for each one. The Pentagon has been surprised by how many of the weapons, mostly Russian designed SA-7's the Iraqi's have turned in ... Altogether, 317 shoulder-fired missiles have been handed over to the military since May 1, (2003) according to unclassified United States military figures. The military has paid more than \$100,000 in rewards the figures show."³⁰

While "American commanders insist they are making headway in bringing order to Iraq, ... the indications are that the fight will be difficult and prolonged." The American commanders indicate that "most ambushes are initiated by a combination of rocket propelled grenades or improvised explosive devices..." The report continues, "The use of small-arms fire and rocket propelled grenade attacks, command-detonated improvised explosive devices (IEDs) and mortar rounds continues to increase; especially the frequency of attacks which utilize command detonated improvised explosive devices daisy-chained together, buried or hidden along roads or highways." (*New York Times*, October 19th 2003).

A dispatch from Iraq to the *New York Times* by John F. Burns on December 26, 2003 included the following, "as fought by the soldiers, this war has little in common with the glories memorialized in the camp's name, drawn from Saint-Mare Église, the Normandy town where the 82nd Airborne paratroopers dropped on D-Day in June 1944. Here the

enemy is shadowy and fleeting, and prepared to use any tactic however brutal to kill and wound Americans..."This camp is at the heart of the so-called Sunni Triangle known as such for its domination by Sunni Muslims, who remain Mr. Hussein's strongest loyalists. About 90% of all insurgent attacks have been in this area.

Along Highway 1, the expressway stretching westward past Falluja, shepherds wave at passing American convoys, then use doctored cell-phones to detonate 122-mm artillery shells fashioned into crude bombs and buried in the median strip or under overpasses. Recently, troops at Camp Saint-Mare said a man sent his eight year old son to throw a grenade into the back of a Humvee, severely wounding an American soldier.

John F. Burns reported that most soldiers "seem to think it is winnable although not perhaps for several years, longer if ordinary Iraqis keep denying the American-led coalition intelligence on the insurgency. ... The soldiers' talk abounded with accounts of near-misses, of grenades tossed out of seemingly friendly crowds, of roadside bombs exploding beside Humvees." All these reports are characteristic of the experience of American soldiers confronting a guerilla opponent.

Post traumatic stress disorder is the name that professional psychiatrists gave to the pattern of suffering that was so widespread among U.S. Vietnam war veterans. This included recurring anxiety, sleeplessness, nightmares and depression severe enough to disrupt a soldier's life, and is often suffered long after the military experience is over. Soldiers suffered alienation from both intimates and from the world at large. Soldiers in Iraq have not gone unscathed.

Though military researchers have estimated that twenty-five percent of the soldiers on the front lines of a war will experience combat stress, it seems possible that for Iraq the numbers will be even greater...

'These troops know no frontline,' says Alfonso Batres, the clinical psychologist in charge of readjustment counseling services for the 206 Vet Centers around the country. 'Its just like Vietnam. They have to be on guard with everyone; they're always facing an unknown. In some ways, fighting a conventional war is a lot easier on the psyche.'³¹

Back at home, soldiers with *post traumatic stress disorder* have troubles adjusting to civilian life. Thus, as journalist Sarah Corbett has noted, sharp noises such as a dropped cafeteria tray or a backfiring car can cause these men and women to react as though under attack, diving for cover or searching for assailants. The full extent of such damage done to U.S. soldiers who have served in Iraq, will not be known until long after the troops come home.

As America's state managers devised military plans for world hegemony, they came to believe that the American production machine could deliver invincible military power that they could wield anywhere on earth. That included the world's largest stockpile of nuclear weapons, whose very existence under their control has been judged to be a fearsome instrument for power wielding. All the while, American state managers were unable (unwilling) to contemplate limits to their military power. To their dismay, their war in Vietnam was a failure. But they continue to pursue the same strategy in Iraq. Their multi-billion dollar budgets were no match for the weapons of guerilla warfare. But polite discussion has not permitted confronting these realities in American schools and the media.

While the terrible costs of this U.S. drive for global hegemony can often seem far away, viewed through the lens of a compliant media, half a century of permanent war economy has wrought a heavy toll close to home: in the shape of deindustrialization and the hollowing out

of U.S. infrastructure. We will explore this damage, as well as possible strategies for change, in the following chapters.

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- ¹ *International A.N.S.W.E.R.*, “A Century of U.S. Military Interventions”.
- ² www.unknownnews.net/casualties.html
- ³ www.unknownnews.net/casualties.html
- ⁴ Seymour Melman, *Pentagon Capitalism*, (Mcgraw-Hill, 1970), pp. 139-140.
- ⁵ *Vietnam: The Definitive Documentation of Human Decisions*, ed. Gareth Porter (E.M. Coleman, 1979), vol. 1, p. 95. This volume contains the full text of the February 16, 1946 letter by Ho Chi Minh, cited in *After Capitalism*, p 116.
- ⁶ “Iraq Said to Have Tried to Reach Last-Minute Deal to Avert War”, *New York Times*, November 6, 2003.
- ⁷ Idem. See also Seymour M. Hersh, *Chain of Command: The Road from 9/11 to Abu Ghraib*, (Harper Collins, 2004), pp. 175-176.
- ⁸ Seymour Melman, *Pentagon Capitalism*, (Mcgraw-Hill, 1970), pp. 143-144.
- ⁹ Ibid.
- ¹⁰ National Priorities Project, www.costofwar.com .
- ¹¹ *New York Times*, Jan. 8, 2002.
- ¹² “Footprints In Steppes Of Central Asia”, *Washington Post*, Feb 9, 2002.
- ¹³ www.globalsecurity.org/news/2002/020209-attack01.htm
- ¹⁴ *Digital Globe*, June 13, 2002: www.globalsecurity.org/military/facility/html/al-udeid_dg-20.html
- ¹⁵ *National Public Radio*, “Morning Edition”, November 7, 2003.
- ¹⁶ Peter Singer, *Corporate Warriors: The Rise of the Privatized Military Industry* , (Cornell University Press, Ithaca, 2003), pp 243-244.
- ¹⁷ *National Public Radio*, “Morning Edition”, November 7, 2003.
- ¹⁸ Seymour Melman, *Pentagon Capitalism*, (Mcgraw-Hill, 1970), pp. 140-141.
- ¹⁹ Seymour Melman, *The Permanent War Economy*, (Simon & Schuster, 1985), pp. 170-1.
- ²⁰ Seymour Melman, *Pentagon Capitalism*, (Mcgraw-Hill, 1970), pp. 143-4.
- ²¹ Seymour Melman, *The Permanent War Economy*, (Simon & Schuster, 1985), p. 170
- ²² Seymour Melman, *Pentagon Capitalism*, (McGraw-Hill, 1970), Chapter 6, cited in Seymour Melman, *Permanent War Economy* (Simon and Schuster, 1985) p. 170-1.
- ²³ “Pentagon’s Request for Iraq Includes Money for Troops and Rewards”, *New York Times*, October 5, 2003.
- ²⁴ N. Chomsky in his important volume *For Reasons of State*, (Pantheon Books, 1973), pp. 84-86, has defined with exacting detail the mechanism whereby the destruction of the NLF-supporting population base became an explicit military objective of the United States.
- ²⁵ Seymour Melman, *Permanent War Economy* (Simon and Schuster, 1985) p. 171.
- ²⁶ Seymour Melman, *Pentagon Capitalism*, (Mcgraw-Hill, 1970), p. 141.
- ²⁷ Seymour Melman, *Pentagon Capitalism* (McGraw-Hill, 1970) p. 142.
- ²⁸ Ibid.
- ²⁹ *New York Times*, “Insurgents Use Rockets on Donkey Carts to Hit Sites in Iraqi Capital”, November 22, 2003.
- ³⁰ Patrick Dillon, interview with author.
- ³¹ *New York Times*, October 8th 2003.
- ³² Sara Corbett, “The Permanent Scars of Iraq”, *New York Times Magazine*, Feb. 15, 2004.

Chapter 3 - Deindustrializing the US: The War Against American Workers¹

America's state capitalist managers are mobilized to fight a war on two fronts. The first war is fought for hegemony over new populations as in Vietnam, Iraq, and Afghanistan. The second war is fought against Americans who work for a living, where the main instrument is the process of closing down American factories and allied workplaces. This second war is fought by economic measures of every sort. Compare the wages of American workers with those of states like China, whose governments are committed to prevent the creation of free trade unions. The wage differential between American and Chinese based production is now approximately 49 to 1. This differential also obtains for clerical, sales, administrative and other white-collar workers of all grades. The rush to enrich has seized American managers who are now schooled to ignore the consequence of lost livelihood in whole communities, and lost production capacity of whole industries. The rules for the war against American employees—white or blue collar—do not admit of any statement of limits.

Until the middle of the 20th century, the managers and engineers of U.S. industry were probably the world's best organizers of industrial work—that was the root of their firm's profits and the basis for their claim to large personal incomes. By the close of the 20th century the corps of U.S. managers had been modified by a major infusion of financial ideology. Money was increasingly to be “made” by market manipulation. Production was treated as old fashioned, a function that could be left to the underclasses of the Third World. This idea gained acceptance despite the fact that history contains no recent record of a nation being continuously supplied with goods from the “outside” and producing none in return. But America's economists are not asked to explain such matters. Therefore, the great wave of U.S. management decisions to move production out of the U.S. has been virtually unchallenged.

The decision power and personal wealth accorded to managers was one side of a historic social contract. In return for these privileges management was expected, by working people and community, to organize work. That social contract was threatened by the Great Depression and was reconstituted as a legitimation for management only when a new contingent of state managers was introduced to share in decision power over the industrial economy. Thereafter, management's economists, informed by the theories of John Maynard Keynes, hoped that a new “public sector” military economy could help to restore industrial employment and stabilize the functioning of management's decision processes, extending to the “private sector” as well.

But the focused pursuit of profits and power by both private and state managers, acting in combination, also resulted in a major unanticipated effect. A process of technological and economic depletion of the means of production themselves was set in motion through the 20th century, causing major contraction of opportunities for productive livelihood.²

I approached this problem in my study, *Profits Without Production*, from which I draw some helpful framing comments for understanding the ongoing process of deindustrialization. Sad to say, this war on American workers proceeds unabated. Since the mid-1960s the production competence of U.S. manufacturing has been deteriorating. By 2001, 61 percent

of the new cars sold in the U.S. were being supplied from abroad, and 63 percent of the new metal-cutting machine tools, 65 percent of computers and peripherals, and 87 percent of audio and video equipment were no longer produced by American workers in American factories. Now, a visit to almost any hi-fi or electronics store in an American city will confirm that only a minor part of the sophisticated products offered for sale are made in the United States.

Power tools, handheld and table mounted, for example, are an important class of equipment due to their key functions in the construction trades, as well as in home workshops. A 2003 visit to the tool section at a Home Depot store in New York City showed that 77 percent of all electric power tools were imported, most frequently from China, Taiwan and Mexico. (The American made power tools were professional, “contractor grade” tools, which were significantly more expensive than those targeting the home user market.) The domestic production of these and many other capital and consumer goods has been replaced, increasingly, by products from Western Europe, Japan and most recently China and other parts of Asia.

Percent Of U.S. Market Supplied By Imports During 2001³	
Machine Tools (Metal Cutting)	63%
Machine Tools (Metal Forming)	88%
Automobiles	61%
Iron and Steel	23%
Farm Machinery and Equipment	27%
Construction Machinery	38%
Mining Machinery and Equipment	30%
Oil and Gas Field Machinery and Equipment	28%
Textile Machinery	71%
Semiconductor Factory Machinery	32%
Office Machines	62%
Computers and Peripherals	65%
Broadcasting and Wireless Equipment	33%
Audio and Video Equipment	87%
Semiconductors and Related Devices	54%
Electromedical Apparatus	32%
Apparel	57%
Leather Goods	78%

This collapse in production competence occurred just as the moneymaking successes of U.S. managers reached new highs.

By 1983 I was moved to write about this in my book titled *Profits Without Production*, (Alfred A. Knopf), which essentially anticipated the late 20th century gyrations of the Enrons, and the wholesale deceptions and frauds perpetrated by the financial institutions on the hapless millions who turned over their savings to the custody of “mutual funds”. An excellent portrait of this management style is afforded by the autobiography by Jack Welch, *Jack, Straight From the Gut*, (Warner Business Books, 2001.) A careful critical assessment of

both the firm and General Electric's former chief was produced by Thomas F. O'Boyle, *At Any Cost, Jack Welch, General Electric and the Pursuit of Profit*, (Alfred A. Knopf, 1998). In *Profits Without Production* I detailed the change which had taken place:

Even the most confirmed critics of capitalism had accepted the assessment of the productivity of industrial capitalism made by Karl Marx and Friedrich Engels in the *Communist Manifesto* (1848):

The bourgeoisie, during its rule of scarce one hundred years, has created more massive and more colossal productive forces than have all preceding generations together. Subjection of nature's forces to man, machinery, application of chemistry to industry and agriculture, steam-navigation, railways, electric telegraphs, clearing of whole continents for cultivation, canalization of rivers, whole populations conjured out of the ground—what earlier century had even a presentiment that such productive forces slumbered in the lap of social labour?

Most economists had once agreed that businessmen act as organizers of production, and differed sharply with the Marxists on the subject of distribution, seeing profit not as exploitation but as just return for services rendered.*

During the latter half of the twentieth century, the pattern of industrial capitalism shifted. Soon after World War II the marketing executive emerged as the bright star of the American managerial firmament. "Madison Avenue" took center stage. The ideal type, as portrayed in management journals, had become the financier-strategist, the shrewd, nimble operator who combined disparate firms into conglomerates that maximized the short-term profit-taking opportunities afforded by tax laws, securities transfers, the milking of production assets and other financial legerdemain. This is a world of moneymaking, one that can prosper financially even as production is neglected or transferred to distant lands. In this world, the optimum condition is profit without any production.⁴ [Note that these forms of moneymaking later reached a frenzy during the 1990's internet bubble.]

The historic crises of American capitalism—those revealing the functional incapacities of the system—were typically crises of decision-making, of the interior mechanism of the *business* process, while the production plant was fully competent to serve the market. The new and unprecedented development in American capitalism is the collapse of production competence in the manufacturing process itself.⁵

DEINDUSTRIALIZATION GOES UNNOTICED

If, as I pointed out in my earlier study, this collapse of production has been underway for decades, how is it that this disastrous process has gone largely unchallenged? Again, it is worth reminding ourselves of the cover stories which

* An exemplary diagnosis of the businessmen of that era is in Thorstein Veblen, *The Theory of Business Enterprise* (Viking Press, 1946).

have masked full understanding of the realities of deindustrialization. Chief among them is the post-war myth of a post-industrial society. In fact deterioration in the production competence of U.S. industries had been well under way since 1960 and was reported in some detail by 1965.⁶ But these early warnings of industrial inefficiency were received with skepticism by a population and government that was still aglow with the euphoria of World War II, that still believed the United States could enjoy both guns and butter, that had just been marshaled for the conquest of space and the first landing of man on the moon.

In 1960, the air was full of Kennedy's election campaign waged against a missile gap. Then came the Bay of Pigs debacle, defense against nuclear attack by means of "fallout shelters", the Berlin Wall crisis, the Cuban Missile crisis, the trauma of Kennedy's assassination, and the election of Lyndon Johnson—the pro-peace candidate who operated a small war on poverty and a large war in Vietnam.

All this while the universities were awash in money, as the government, with cheers from the populace, demanded more science, more technology, more trained professionals to guarantee U.S. leadership in the space race and the arms race too. In the midst of such excitements, almost no one paid much attention to the closing of factories in a widening sweep of Northeastern and Midwestern cities.

The American intelligentsia were seized with dreams of a post-industrial society—so why not hand over mundane production to the Japanese and Chinese while the United States concentrated on high technology?⁷ Against such a background of ideological reassurance, (or was it nationalist arrogance?) few were prepared to consider the full significance of many ongoing events. So the World Trade Center in New York City had a steel framework that was made in Japan—well, after all, the U.S. construction industry has long been backward. So the Alaska pipeline was made in Japan—well, the Japanese steel industry profited from its technical renewal, having been destroyed by U.S. bombardments during World War II. So the shoe factories of New England are closing and their machinery and tools are sold abroad—well, in the post-industrial society, Americans should be concerned with high technology and not with demeaning work like shoemaking that can well be done in less developed countries.

So the closing of enterprises in the United States during the decades leading to 2000 disrupted the lives of millions—well, let the labor market handle the problem of placing those people back into the U.S. economy.⁸

There have been important barriers to seeing, and therefore believing, that the United States has been losing its productive vitality. The decline is felt by working people, technicians, and their immediate communities, who have lost their livelihoods and often been forced into a gypsy-like existence in the quest for jobs. The effect on young people, as candidates for entry-level industrial jobs, is particularly hurtful.^{*} The rest of the town feels at second hand the effects of lost industrial jobs—by the appearance of a *Lumpenproletariat*, that

* One effect of the deindustrialization process has been to create unemployment. Higher unemployment however has been significantly concentrated among black workers, largely due to racism entrenched in U.S. society. This shunting of unemployment to black workers has also resulted in some degree of sheltering white workers from unemployment, and thereby obscured the understanding of deindustrialization in mainstream America.

is, a permanently unemployed, or underemployed welfare-dependent population, and by the decline of municipal facilities and services of every sort.

Still an important part of American society has been substantially shielded from these effects. This is the suburban middle class, which is concentrated in occupations that are not related to manufacture. For these people deterioration in the United States' producing capability is hardly visible. Well-made durable goods are available from local dealers, and in middle-class suburbia public amenities are often first-rate. Americans are simply unaware or have been unwilling to confront a new, culturally astonishing fact: the United States is well on the way to becoming a third-rate industrial country.⁹

Now in the 21st Century the idea of "going offshore" is widely appreciated in management circles. Taking advantage of low-wage labor and virtual government guarantees of no unionization, (as in China and Mexico) has been a highly attractive lure to many managements. A repeated pattern has involved moving production operations abroad, (with either American managers or with production by foreign contractors) while retaining U.S.-based top management and marketing operations. Lou Dobbs, a CNN network newscaster has tracked the firms engaged in "Exporting America". As of June 25th, 2004 his list includes 807 such American firms that are either "sending American jobs overseas, or choosing to employ cheap overseas labor, instead of American workers".¹⁰

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807 U.S. FIRMS "OUTSOURCE" AMERICAN JOBS

Aalfs Manufacturing
Aavid Thermal Technologies
ABC-NACO
Accenture
Access Electronics
Accuride Corporation
Accuride International
Adaptec
ADC
Adobe Air
Adobe Systems
Advanced Energy Industries
Aci Acquisitions
Aetna
Affiliated Computer Services
AFS Technologies
A.G. Edwards
Agere Systems
Agilent Technologies
AIG
Alamo Rent A Car
Albany International Corp.
Albertson's
Alcoa
Alcoa Fujikura
Allen Systems Group
Alliance Semiconductor
Allstate

Alpha Thought Global
Altria Group
Amazon.com
AMD
Americ Disc
American Dawn
American Express
American Greetings
American Household
American Management Systems
American Standard
American Tool
American Uniform Company
AMETEK
AMI DODUCO
Amloid Corporation
Amphenol Corporation
Analog Devices
Anchor Glass Container
ANDA Networks
Anderson Electrical Products
Andrew Corporation
Anheuser-Busch
Angelica Corporation
Ansell Health Care
Ansell Protective Products
Anvil Knitwear
AOL
A.O. Smith
Apple
Applied Materials
Arkansas General Industries
Ark-Les Corporation
Arlee Home Fashions
Art Leather Manufacturing
Artex International
ArvinMeritor
Asco Power Technologies
Ashland
AstenJohnson
Asyst Technologies
Atchison Products, Inc.
A.T. Cross Company
AT&T
AT&T Wireless
A.T. Kearney
Augusta Sportswear
Authentic Fitness Corporation

Automatic Data Processing
Avanade
Avanex
Avaya
Avery Dennison
Azima Healthcare Services
Axiohm Transaction Solutions
Bank of America
Bank of New York
Bank One
Bard Access Systems
Barnes Group
Barth & Dreyfuss of California
Bassett Furniture
Bassler Electric Company
BBi Enterprises L.P.
Beacon Blankets
BearingPoint
Bear Stearns
BEA Systems
Bechtel
Becton Dickinson
BellSouth
Bentley Systems
Berdon LLP
Berne Apparel
Bernhardt Furniture
Besler Electric Company
Best Buy
Bestt Liebco Corporation
Beverly Enterprises
Birdair, Inc.
BISSELL
Black & Decker
Blauer Manufacturing
Blue Cast Denim
Bobs Candies
Borden Chemical
Bourns
Bose Corporation
Bowater
BMC Software
Boeing
Braden Manufacturing
Briggs Industries
Brady Corporation
Bristol-Myers Squibb
Bristol Tank & Welding Co.

Brocade
Brooks Automation
Brown Wooten Mills Inc.
Buck Forkardt, Inc.
Bumble Bee
Burle Industries
Burlington House Home Fashions
Burlington Northern and Santa Fe Railway
C&D Technologies
Cadence Design Systems
Camfil Farr
Candle Corporation
Cains Pickles
Capital One
Capital Mercury Apparel
Cardinal Brands
Carrier
Carter's
Caterpillar
C-COR.net
Cellpoint Systems
Cendant
Centis, Inc.
Cerner Corporation
Charles Schwab
Chevron/Texaco
The Cherry Corporation
CIBER
Ciena
Cigna
Circuit City
Cirrus Logic
Cisco Systems
Citigroup
Clear Pine Mouldings
Clorox
CNA
Coastcast Corp.
Coca-Cola
Cognizant Technology Solutions
Collins & Aikman
Collis, Inc.
Columbia House
Columbus McKinnon
Comcast Holdings
Comdial Corporation
Computer Associates
Computer Horizons

Computer Sciences Corporation
CompuServe
Concise Fabricators
Conectl Corporation
Conseco
Consolidated Metro
Consolidated Ventura
Continental Airlines
Convergys
Cooper Crouse-Hinds
Cooper Tire & Rubber
Cooper Tools
Cooper Wiring Devices
Copperweld
Cordis Corporation
Corning
Corning Cable Systems
Corning Frequency Control
Countrywide Financial
COVAD Communications
Covansys
Creo Americas
Cross Creek Apparel
Crouzet Corporation
Crown Holdings
CSX
Cummins
Cutler-Hammer
Cypress Semiconductor
Dana Corporation
Daniel Woodhead
Davis Wire Corp.
Daws Manufacturing
Dayton Superior
DeCrane Aircraft
Delco Remy
Dell Computer
DeLong Sportswear
Delphi
Delta Air Lines
Delta Apparel
Direct TV
Discover
DJ Orthopedics
Document Sciences Corporation
Dometic Corp.
Donaldson Company
Douglas Furniture of California

Dow Chemical
Dresser
Dun & Bradstreet
DuPont
Earthlink
Eastman Kodak
Eaton Corporation
Edco, Inc.
Editorial America
Edscha
eFunds
Ehlert Tool Company
Elbeco Inc.
Electro Technology
Electroglas
Electronic Data Systems
Electronics for Imaging
Eli Lilly
Elmer's Products
E-Loan
EMC
Emerson Electric
Emerson Power Transmission
Emglo Products
Engel Machinery
En Pointe Technologies
Equifax
Ernst & Young
Essilor of America
Ethan Allen
Evenflo
Evergreen Wholesale Florist
Evolving Systems
Evy of California
Expedia
Extrasport
ExxonMobil
Fairfield Manufacturing
Fair Isaac
Fansteel Inc.
Farley's & Sathers Candy Co.
Fasco Industries
Fawn Industries
FCI USA
Fedders Corporation
Federal Mogul
Federated Department Stores
Fellowes

Fender Musical Instruments
Fidelity Investments
Financial Technologies International
Findlay Industries
First American Title Insurance
First Data
First Index
Fisher Hamilton
Flowserve
Fluor
FMC Corporation
Fontaine International
Ford Motor
Foster Wheeler
Franklin Mint
Franklin Templeton
Freeborders
Frito Lay
Fruit of the Loom
Garan Manufacturing
Gateway
GE Capital
GE Medical Systems
Gemtron Corporation
General Binding Corporation
General Cable Corp.
General Electric
General Motors
Generation 2 Worldwide
Genesco
Georgia-Pacific
Gerber Childrenswear
Global Power Equipment Grp.
GlobespanVirata
Goldman Sachs
Gold Toe Brands
Goodrich
Goodyear Tire & Rubber
Google
Graphic Controls
Greenpoint Mortgage
Greenwood Mills
Grote Industries
Grove U.S. LLC
Guardian Life Insurance
Guilford Mills
Gulfstream Aerospace Corp.
Haggar

Halliburton
Hamilton Beach/Procter-Silex
The Hartford Financial Services Group
Harper-Wyman Company
Hasbro Manufacturing Services
Hawk Corporation
Hawker Power Systems, Inc.
Haworth
Headstrong
HealthAxis
Hedstrom
Hein-Werner Corp.
Helen of Troy
Helsapenn Inc.
Hershey
Hewitt Associates
Hewlett-Packard
Hoffman Enclosures, Inc.
Hoffman/New Yorker
The Holmes Group
Home Depot
Honeywell
HSN
Hubbell Inc.
Humana
Hunter Sadler
Hutchinson Sealing Systems, Inc
HyperTech Solutions
IBM
iGate Corporation
Illinois Tool Works
IMI Cornelius
Imperial Home Decor Group
Indiana Knitwear Corp.
IndyMac Bancorp
Infogain
Ingersoll-Rand
Innodata Isogen
Innova Solutions
Insilco Technologies
Intel
InterMetro Industries
International Paper
Interroll Corporation
Intesys Technologies
Intuit
Invacare
Iris Graphics, Inc.

Isola Laminate Systems
Iteris Holdings, Inc.
ITT Educational Services
ITT Industries
Jabil Circuit
Jacobs Engineering
Jacuzzi
Jakel, Inc.
JanSport
Jantzen Inc.
JDS Uniphase
Jockey International
John Crane
John Deere
Johns Manville
Johnson Controls
Johnson & Johnson
JPMorgan Chase
J.R. Simplot
Juniper Networks
Justin Brands
K2 Inc.
KANA Software
Kaiser Permanente
Kanbay
Kayby Mills of North Carolina
Keane
Kellogg
Kellwood
KEMET
KEMET Electronics
Kendall Healthcare
Kenexa
Kentucky Apparel
Kerr-McGee Chemical
KeyCorp
Key Industries
Key Safety Systems
Key Tronic Corp.
Kimberly-Clark
KLA-Tencor
Kojo Worldwide Corporation
Knight Textile Corp.
Kraft Foods
Kulicke and Soffa Industries
Kwikset
Lake Village Industries
Lancer Partnership

Lander Company
LaCrosse Footwear
Lamb Technicon
Lands' End
Lau Industries
Lawson Software
Layne Christensen
Leach International
Lear Corporation
Leech Tool & Die Works
Lehman Brothers
Leoni Wiring Systems
Levi Strauss
Leviton Manufacturing Co.
Lexmark International
Lexstar Technologies
Liebert Corporation
Lifescan
Lillian Vernon
Linksys
Linq Industrial Fabrics, Inc.
Lionbridge Technologies
Lionel
Littelfuse
LiveBridge
LNP Engineering Plastics
Lockheed Martin
Longaberger
Louisiana-Pacific Corporation
Louisville Ladder Group LLC
Lowe's
Lucent
Lund International
Lyall Alabama
Madill Corporation
Magma Design Automation
Magnequench
Magnetek
Maidenform
Mallinckrodt, Inc.
The Manitowoc Company
Manugistics
Marathon Oil
Marine Accessories Corp.
Maritz
Mars
Marshall Fields
Mattel

Master Lock
Materials Processing, Inc.
Maxi Switch
Maxim Integrated Products
Maxxim Medical
Maytag
McDATA Corporation
McKinsey & Company
MeadWestvaco
Mediacopy
Medtronic
Mellon Bank
Mentor Graphics Corp.
Meridian Automotive Systems
Merit Abrasive Products
Merrill Corporation
Merrill Lynch
Metasolv
MetLife
Micro Motion, Inc.
Microsoft
Midcom Inc.
Midwest Electric Products
Milacron
Modern Plastics Technics
Modine Manufacturing
Moen
Money's Foods Us Inc.
Monona Wire Corp.
Monsanto
Morgan Stanley
Motion Control Industries
Motor Coach Industries International
Motorola
Mrs. Allison's Cookie Co.
MTD Southwest
Mulox
Munro & Company
Nabco
Nabisco
NACCO Industries
National City Corporation
National Electric Carbon Products
National Life
National Semiconductor
NCR Corporation
neoIT
NETGEAR

Network Associates
Newell Rubbermaid
Newell Window Furnishings
New World Pasta
New York Life Insurance
Nice Ball Bearings
Nike
Nordstrom
Northrop Grumman
Northwest Airlines
Nu Gro Technologies
Nu-kote International
NutraMax Products
O'Bryan Brothers Inc.
Ocwen Financial
Office Depot
Ogden Manufacturing
Oglevee, Ltd
Ohio Art
Ohmite Manufacturing Co.
Old Forge Lamp & Shade
Omniglow Corporation
ON Semiconductor
Orbitz
Oracle
OshKosh B'Gosh
Otis Elevator
Outsource Partners International
Owens-Brigam Medical Co.
Owens Corning
Oxford Automotive
Oxford Industries
Pacific Precision Metals
Pak-Mor Manufacturing
palmOne
Parallax Power Components
Paramount Apparel
Parker-Hannifin
Parsons E&C
Paxar Corporation
Pearson Digital Learning
Peavey Electronics Corporation
PeopleSoft
PepsiCo
Pericom Semiconductor
PerkinElmer
PerkinElmer Life Sciences, Inc.
Perot Systems

Pfaltzgraff
Pfizer
Phillips-Van Heusen
Photonics
Pinnacle Frames
Pinnacle West Capital Corporation
Pitney Bowes
Plaid Clothing Company
Planar Systems
Plexus
Pliant Corporation
PL Industries
Polaroid
Polymer Sealing Solutions
Portal Software
Portex, Inc.
Portola Packaging
Port Townsend Paper Corp.
Power One
Pratt & Whitney
Price Pfister
priceline.com
Pridecraft Enterprises
Prime Tanning
Primus Telecom
Procter & Gamble
Progress Lighting
ProQuest
Providian Financial
Prudential Insurance
Quaker Oats
Quadion Corporation
Quantegy
Quark
Qwest Communications
Radio Flyer
Radio Shack
Rainbow Technologies
Rawlings Sporting Goods
Rayovac
Raytheon Aircraft
RBX Industries
RCG Information Technology
Red Kap
Regal Rugs
Regal-Beloit Corporation
Regence Group
Respiratory Support Products

R.G. Barry Corp.
Rich Products
River Holding Corp.
Robert Mitchell Co., Inc.
Rockwell Automations
Rockwell Collins
Rogers
Rohm & Haas
Ropak Northwest
RR Donnelley & Sons
Rugged Sportswear
Russell Corporation
S1 Corporation
S & B Engineers and Constructors
Sabre
Safeway
SAIC
Sallie Mae
Samsonite
Samuel-Whittar, Inc.
Sanford
Sanmina-SCI
Sapient
Sara Lee
Saturn Electronics & Engineering
SBC Communications
Schumacher Electric
Scientific Atlanta
Seal Glove Manufacturing
Seco Manufacturing Co.
SEI Investments
Sequa Corporation
Seton Company
Sheldahl Inc.
Shipping Systems, Inc.
Shugart Corp.
Siebel Systems
Sierra Atlantic
Sights Denim Systems, Inc.
Signal Transformer
Signet Armorlite, Inc.
Sikorsky
Silicon Graphics
Simula Automotive Safety
SITEL
Skyworks Solutions
SMC Networks
SML Labels

SNC Manufacturing Company
SoftBrands
Sola Optical USA
Solectron
Sonoco Products Co.
Southwire Company
Sovereign Bancorp
Spectrum Control
Spicer Driveshaft Manufacturing
Springs Industries
Springs Window Fashions
Sprint
Sprint PCS
SPX Corporation
Square D
Standard Textile Co.
Stanley Furniture
Stanley Works
Stant Manufacturing
Starkist Seafood
State Farm Insurance
State Street
Steelcase
StorageTek
Store Kraft Manufacturing
StrategicPoint Investment Advisors
Strattec Security Corp.
STS Apparel Corporation
Summitville Tiles
Sun Microsystems
Sunrise Medical
SuntronE
SunTrust Banks
Superior Uniform Group
Supra Telecom
Sure Fit
SurePrep
The Sutherland Group
Sweetheart Cup Co.
Swift Denim
Sykes Enterprises
Symbol Technologies
Synopsis
Synygy
Takata Retraining Systems
Target
Teccor Electronics
Techalloy Company, Inc.

Technotrim
Tecumseh
Tee Jays Manufacturing
Telcordia
Telect
Teleflex
TeleTech
Telex Communications
Tellabs
Tenneco Automotive
Teradyne
Texas Instruments
Textron
Thermal Industries
Therm-O-Disc, Inc.
Thomas & Betts
Thomasville Furniture
Thomas Saginaw Ball Screw Co.
Three G's Manufacturing Co.
Thrivent Financial for Lutherans
Time Warner
Tingley Rubber Corp.
The Timken Company
Tomlinson Industries
The Toro Company
Torque-Traction Mfg. Tech.
Tower Automotive
Toys "R" Us
Trailmobile Trailer
Trans-Apparel Group
TransPro, Inc.
Trans Union
Travelocity
Trek Bicycle Corporation
Trend Technologies
TriMas Corp.
Trinity Industries
Triquint Semiconductor
TriVision Partners
Tropical Sportswear
TRW Automotive
Tumbleweed Communications
Tupperware
Tyco Electronics
Tyco International
UCAR Carbon Company
Underwriters Laboratories
UniFirst Corporation

Union Pacific Railroad
Unison Industries
Unisys
United Airlines
UnitedHealth Group Inc.
United Online
United Plastics Group
United States Ceramic Tile
United Technologies
Universal Lighting Technologies
USAA
Valence Technology
Valeo Climate Control
VA Software
Velvac
Veritas
Verizon
Vertiflex Products
VF Corporation
Viasystems
Vishay
Visteon
VITAL Sourcing
Wabash Alloys, L.L.C.
Wabash Technologies
Wachovia Bank
Walgreens
Walls Industries
Warnaco
Washington Group International
Washington Mutual
WebEx
Weiser Lock
WellChoice
Wellman Thermal Systems
Werner Co.
West Corporation
West Point Stevens
Weavexx
Weyerhaeuser
Whirlpool
White Rodgers
Williamson-Dickie Manufacturing Company
Wipak Films
Wolverine World Wide
Woodstock Wire Works
Woodstuff Manufacturing
WorldCom

World Kitchen
Wyeth
Wyman-Gordon Forgings
Xerox
Xpectra Incorporated
Xpita
Yahoo!
Yarway Corporation
York International
Zenith
ZettaWorks

(Source: CNN, *Lou Dobbs Tonight* “Exporting America” as of 6/25/04)

Why have hundreds of American firms abandoned U.S. production – in whole or in part - in favor of relocating to China, Mexico or other similar locations? Largely responsible is the U.S. industrial managers’ reluctance to invest in *production method* Research and Development (R+D) for developing substantial increases in productivity and cost-reduction. Though such R&D is necessary for maintaining a firm’s long-term competitiveness, it is also expensive and carries an inherent risk of uncertain results. U.S. managers—who personally benefit from short-term increases in profits—have preferred instead to achieve cost-reductions and profit increases by the sure-fire method of hiring drastically cheaper labor—typically in foreign countries. This results in both a loss of American jobs, and a possible loss of expertise to other nations’ firms who are still willing to invest in production method R&D.

It is unlikely that the processes can be reversed by any quick fix. Thus, asking the schools of business administration to give more attention to production can’t change the priorities of the present faculties, or the intellectual assumptions and cultural biases that guide those institutions. The low esteem in which production work is held by the managerial teaching centers of the United States, private and public, cannot be altered by admonitions that they mend their ways.

OUTSOURCING VS. WORKPLACE DEMOCRACY

The widespread transfer of manufacturing from the United States is having an additional, and virtually undiscussed, consequence. It not only drastically undercuts workers’ ability –at home and abroad—to control their lives and seek fair and safe working conditions; outsourcing also has disastrous consequences for productivity and R+D. The factory has historically been a chief site for the formation of trade-unions. In forming unions, workers strive to define their relationships to one another, as well as their relationships with management. Through this process, workers gain more control over their working lives, including the details of their work performance. Effectively, workers thereby gain increasing voice in the operation of their factories. Making profitable use of new production methods—especially those using capital-intensive computerized manufacturing equipment—requires a production labor force that is flexible, well educated and capable of exercising a range of independent decision-making. Thus developing and improving methods of a modern factory reinforces the workers own attempts to gain control over their working lives.

The outsourcing phenomenon undercuts this development in two ways. First, the classic choice of location for the offshore factory is China—where the government actively suppresses the formation of independent unions. Similar conditions can be found in many other nations around the world. Secondly, access to dramatically lower-wage labor removes

pressures on management to develop and implement higher-productivity equipment and techniques. Thereby, outsourcing relieves managements of responsibility for R&D costs that are required for developing and applying new technologies for raising the productivity of labor as well as capital.*

PATTERNS OF DEINDUSTRIALIZATION

The opening of the 21st century has included accelerated deindustrialization of U.S. industry. We can now see a pattern of symptoms that accompany the removal of production work from the U.S. locale:

- v Industrial research and development for innovative products and *production processes* is avoided;
- v Top management of leading firms become increasingly finance- and short-term-profit-oriented;
- v Investment in new equipment is deferred, and the age of manufacturing facilities increases;
- v Product variety within firms is enlarged and opportunities for standardization of components are avoided;
- v Maintenance of production equipment is deferred and product reliability declines;
- v Quality is controlled by defining acceptable percentages of defective products;
- v Work and workers are accorded low status, and therefore the organization of work is of secondary importance;
- v Technical initiatives by workers is resisted as diminishing the power and effectiveness of management; profits are maintained by seeking investment opportunities outside the original product sphere of the firm;
- v Production facilities are abandoned after systematic withholding of maintenance and equipment replacement;
- v Management seeks improvement in overall efficiency by intensifying administrative controls and supervision;
- v Wage rates are described as the prime cause of noncompetitiveness;
- v Opportunities for improving productivity of capital and labor through stabilization of operations are characteristically ignored, being mainly unknown to industry managers, while management attempts to pass along cost increases to customers.¹¹

As I also noted in *Profits Without Production*: “When all else fails—and profits as well as management’s position are in peril—management turns to government for subsidy and rescue. Meanwhile, management seeks its self-justification in pronouncements about post-industrial society, “sunset” industries and the like.”¹² Managers of leading firms then seek

* The subject of developments in workplace democracy has been dealt with at length in *After Capitalism* Parts IV&V, (Chapters 9,10,11,12). These sections include details on these processes in various unions, industries and firms. It is important to understand that these processes also apply to a host of white-collar occupations and industries as well.]

renewed viability for themselves by redefining their main function to marketing, leaving production to others. This process has been decades in the making.

ALTERNATIVE MANAGEMENT STYLES: MAZDA AND CHRYSLER CONFRONT AUTO INDUSTRY CRISIS

The consequences of major differences in managerial styles can be far-reaching. Given current anxieties about the spiraling costs of oil, and America's addiction to gas guzzling SUVs, it is worth revisiting the strikingly different responses of Japanese and American auto manufacturers to an early oil crisis. Here is an illustration from the problems of the automobile industry. Japanese and American auto firms both experienced the "oil shock" of 1973. It's instructive to contrast the response in the number-three firm of each industry: Chrysler in the United States and Mazda in Japan. The Mazda management had invested heavily in the Wankel engine, an innovative mechanical design which also had high fuel consumption. Therefore, Mazda sales dropped sharply after 1973, changing hundred-million-dollar profits into equal losses, while the firm also faced indebtedness of about a billion dollars.

The Mazda management started a vigorous campaign to redesign product and production methods toward more fuel-efficient engines and the drastic mechanization of work (especially through installation of robots). The program was supported by financing from banks, with no help coming from government. At the same time, the management gave notice that the jobs of its workers were protected: attrition and early retirement would be the only methods used to reduce employment. During the period of major changeover and lowest production rate, management arranged for 5,000 of its workers to be deployed to Mazda dealers, working there as salesmen and maintenance men. There were pay cuts among managers at Mazda—the largest, 20 percent, among the senior managers—and elimination of bonuses for four years. Middle managers had their salaries and other income frozen. There were no reductions of pay or bonuses for factory workers.

By 1981, Mazda's indebtedness had been cut almost in half and the firm was profitable once again. Its labor productivity was almost doubled. More recently Mazda reported that its net profits had doubled in the first half of 2003, due to strong sales in Europe and Asia.¹³

At Chrysler, the response to OPEC oil pricing did not really start seriously until 1979, when the company was on the verge of bankruptcy. Chrysler turned to the U.S. government to guarantee its future financing, and management discharged 28 percent of its workers and 7 percent of white-collar employees. About two weeks before Chrysler management applied for federal loan guarantees, the top managers announced pay cuts for their levels of 2 to 10 percent. Now in 2004, Chrysler is no longer an American firm, having been bought by the German firm Daimler.

At Mazda the management extended to the work force an implicit understanding that they, production workers, have a major stake in the enterprise and that it is the obligation of management to make sure that that stake is protected. By contrast, the Chrysler management treated its production worker force as "commodities," tossing the ones not needed for management's plans onto "the market." The Chrysler pattern contains the idea that management has a far greater stake in the firm than the production workers, and that the presence of management employees is of greater importance for the competence of the enterprise. Mazda policy was oriented toward conserving the work force as a prime productive asset. The effects of these contrasting policies are obvious enough. At Mazda, management was virtually assured of full support from the work force, including

cooperation in the introduction and utilization of new technology. In the Chrysler case, that was hardly to be expected against the long background of management-union confrontationism.¹⁴ It remains to be seen if American car manufacturers can learn from their past mistakes.

THE ROLE OF U.S. WAGES

Americans witnessing the spectacle of industrial decline have typically responded with a barrage of “explanations.” The claim that “our high wages make us noncompetitive” is often issued first.¹⁵ But history teaches us a different lesson. For two centuries, workshops, then manufacturing industries in the United States prospered while paying the highest wages in the world. This was notably so during the late nineteenth and twentieth centuries, when there was no question about the ease of transporting industrial goods, even across oceans. Product design and productivity in manufacturing in the United States were fully adequate to offset the lower wage costs enjoyed by manufacturers in all the other industrialized countries. Therefore one must ask why U.S. design and production competence faltered even as American managements no longer had to overcome a wage cost handicap.¹⁶

But U.S. industrial firms also have costs besides wages to production workers. Upper level managers in U.S. firms have arranged compensation for themselves and their closer associates that are unique in world capitalism. Here are summary data for 2000, on chief executive pay as a multiple of “employee average” in the U.S. and seven other economies.

Chief Executive Pay As A Multiple Of Employee Average¹⁷	
United States	531
Brazil	57
Mexico	45
Britain	25
Canada	21
France	16
Germany	11
Japan	10

Gretchen Morgenson has taken on the challenge of “Explaining (or Not) Why the Boss is Paid So Much”. She describes a proposal made by Daniel J. Steininger – chairman of the Catholic Funds – to limit executive pay at seven corporations to a maximum of 100 times the pay of the average worker.

The Steininger Seven are Cendant, Compuware, Delta Airlines, the El Paso Corporation, International Paper, Sun Microsystems and Viacom. All were picked because their chiefs’ pay had rocketed versus that of their average workers.

The gap between chiefs’ pay and that of lower-level workers has yawned in recent years. J.P. Morgan, the financier, is credited with suggesting that executives earn no more than 20 times the pay of low-level workers...

In a letter asking the S.E.C. to exclude the proposal, Cendant said it would “impose a constraint” on the salary of its chief executive, Henry R.

Silverman, cutting it to \$2.7 million a year from the \$3.3 million promised annually until 2012. And Mr. Silverman would lose his annual bonus of \$100,000 for each penny a share that Cendant earns.

Of course, Mr. Silverman could cut his pay to zero and not face the poorhouse. Brian Foley, a compensation expert in White Plains, said that from 1998 to 2002, Mr. Silverman received \$36.6 million in salary and bonus and reaped \$223 million from exercising options. He had unexercised options worth \$46 million, and his life is insured for \$100 million, at a cost to shareholders of \$6.5 million. And Cendant will pay Mr. Silverman \$83,000 a month after retirement.

For him to earn all that, his performance must surely be clear and measurable. But Cendant's letter to the S.E.C. calls the fund's proposal too subjective: "How will the company distinguish between those achievements stemming from the C.E.O.'s contribution versus those that are a result of favorable economic conditions or other factors?" That is precisely what critics of executive pay have wondered for years.¹⁸

In the face of these outrageously high American executive salaries, other explanations are offered for U.S. deindustrialization. I have dealt with these kinds of distracting arguments before; in each case, like the myth of the post-industrial society or that of uncompetitive American workers they act as cover stories.

Could the United States be suffering the consequences of having spurred the industrial reconstruction of Japan and Germany after World War II? The fact is that from 1948 to 1971 Japan received \$21.8 *million* in official economic assistance from the United States, while U.S. private investment in Japan was negligible. Under the Marshall Plan, West Germany received \$1.6 *billion* of economic assistance from the United States.

But didn't Germany and Japan get the benefit of building and operating new industrial facilities just because the U.S. had destroyed the older ones during World War II? On average, manufacturing equipment (except for certain units like power plants, railroad roadbeds) have been depreciated in the United States, Germany and Japan in cycles of about ten years. This points to the importance of the decision processes of industrial management that operated over this period, rather than to the unique event of new facilities construction some time after World War II.

Another explanation offered is that the United States just doesn't have "comparative advantage" in the "sunset industries". The economists' idea of comparative advantage has solid meaning when referring, for example, to the natural head start that the United States has in the growing of wheat, corn and cotton, or that Quebec has in the production of electricity from water power. But comparative advantage loses clear meaning when one considers the wide array of products produced in Germany and Japan with great success. What is particularly *German* about the machine tools or electric trolleys ("light rail vehicles") that enjoy a world market? Has anyone discovered an inherently *Japanese* quality in precision 35 mm cameras, hi-fi electronics or electron microscopes?¹⁹

National culture, geography and history, per se, do not account for either their industrial excellence or the U.S. industrial decline. The collapse of industry in the U.S. has been the result of managements' choice to "cash in their chips" rather than value and reinvest in the domestic production system.

By 2003, the list of U.S. industries that are undergoing deindustrialization has gotten quite long. U.S. firms in these industries have withheld investments for replenishing or improving their domestic production facilities. In the short-term, this strategy reduces operating expenses, (associated with new equipment, maintenance etc.) thereby increasing profits. As I have been arguing, the long-term cost however is much steeper – *destruction of the capacity to produce*.

The capacity to produce leans heavily on availability of *means of production*, which play an essential role. Everyone can recognize in the list of the following table both components that are widely used in machinery (ball and roller bearings, carburetors, pistons, rings, valves, transformers) as well as major classes of machinery, (machine tools, farm machinery, construction machinery). These listings appear here because they represent deindustrialization writ large.

The accompanying display on "U.S. Deindustrialization in Production of Machinery" shows the marked decline in number of production workers in U.S. manufacturing facilities producing capital goods—the baseline machines that are a crucial part of the means of production.

U.S. DEINDUSTRIALIZATION IN PRODUCTION OF MACHINERY

Number of Production Workers (1000s)

Industry	1977	2001	Percent Change,
Machine tools (metal cutting)	37.2	11.6	-69 %
Rolling mill machinery	5.4	1.8	-67
Mining machinery	20.3	7.1	-65
Textile machinery	18.3	6.6	-64
Calculators and accounting equipment	10.4	3.9*	-63
Construction machinery	111.2	43.7	-61
Electronic computers (1987 & 2001)	54.7	21.3	-61
Farm machinery and equipment	96.2	41.1	-57
Oil and gas field machinery	39.8	17.1	-57
Machine tools (forming)	16.1	7.2	-55
Turbines and turbine generator sets	24.8	11.8	-52
Carburetors, pistons, rings, valves	26.0	13.9	-47
Power-driven hand tools	20.0	11.0	-45
Air and gas compressors	19.1	11.1	-42
Motors and generators	74.1	45.9	-38
Speed changers, drives and gears	17.6	11.0	-38
Internal combustion engines	65.3	41.2*	-37

Ball and roller bearings	41.3	26.3	-36
Transformers, except electronic	32.8	22.4*	-32

* 1996 Data [Note: A drop in production was typically paralleled by a drop in the number of factories in the given industry, and by an increase in imports]. Source: U.S. Department of Commerce, Census of Manufactures, 1977; Annual Survey of Manufactures, 2001.

Depletion in U.S. industries has occurred in several different ways: profits are made from U.S. sales while production is done abroad by foreign firms buying into American companies; American firms maintain a production base in the United States, but put fresh capital abroad; an industry's profitability is maintained for a few firms that service a government market—as in shipbuilding—while the whole level of activity of the industry declines; managements' failure to invest in new technology causes a general decline in the industry, (such as fishery industries & railroads). The common effect stemming from all the depleted industries is fewer production jobs in the United States.

ON THE ROLE OF CHINA: "HIJACKING JOBS" FROM THE U.S.

In March 2004 the AFL-CIO presented a formal Petition to the government of the United States asking for major relief from the effects of industrialization in China on jobs of American workers. In a carefully drawn brief, supported by several independent studies of industrialization in China, the AFL-CIO charged that American workers are suffering grave injury owing to the repressive anti-union policies of the Chinese government, which also support ambitions for unlimited profit-making by American and other firms. I have excerpted portions of the Petition and these appear in Appendix C. The data summarized there offer both a dramatic portrayal of Chinese worker exploitation, as well as drastic and strikingly rapid job loss for American workers. Those job losses extend over the whole range of manufacturing industry and are bound to have major effect in reducing, even wiping out, whole groupings of U.S. worker skills. The wipeout of skilled worker occupations has the further effect of requiring unprecedented effort to retrain Americans should there be a further interest in serious reindustrialization of the United States.

More than 2 million factory jobs have been relocated from the U.S. in recent years and there doesn't seem to be a halt in that outflow, (see the Section 301 in appendix). China is being marked as a particular villain in this development not only owing to the Chinese wages which are dramatically lower than American wages in comparable occupations, but also the possible role of the Chinese government as it declines to revalue its currency so that the exchange value of the Chinese Yuan is raised thereby making Chinese prices that much more competitive versus counterpart goods prices in the U.S.

Business Week has noted that "fully 65 percent of the growth in Chinese exports over the last decade ... has been generated by subsidiaries or joint ventures of global multinationals." The rising U.S.-Chinese trade deficit, said Stephen Roach, is "an unmistakable outgrowth of the U.S. penchant for outsourcing and China's rapidly emerging role as a global outsourcing platform of choice." Accordingly, Roach marks the investment export initiatives of U.S. industrial firms and financial institutions as being primarily responsible for the continued movement of U.S. manufacturing, in this case particularly to China.

Indeed, notes *Business Week*, "companies based in North America, Europe, Japan, and other Asian nations invested \$53 billion in Chinese facilities in 2002, making it the world's largest recipient of foreign direct investment."²⁰

THE MOVES ARE FOR MORE PROFIT – NOT SURVIVAL

Closing down U.S. factories in order to relocate manufacturing operations to China often requires major personal readjustments for the managers who are directly involved. Such considerations can be most important when the relocation move is made by owner-managers. The scene is different for the management cadres of large multi-division international firms whose managers go through careers that normally include the prospect of many work relocations. In either circumstance, however, major industrial relocation moves are typically made to obtain greater profitability – rather than assuring continued profitability as against near-certain loss. Accordingly, there has been the repeated prospect of more profits by making the move to Mexico or China. However, in the case of the television set industry “labor accounts for about 15 percent of the cost of making televisions”.²¹ Accordingly, the transfer of U.S.-based production to Mexico or China is not a transfer from production worker wages of 15 percent of cost, down to worker wages approaching zero, but rather a downward wage shift that opens up prospects for greater profit. Consider that average compensation costs to hire American workers have now been running at about \$22 an hour in 2003. The alternative in Mexico or China is rather less than that, but not zero.

One of the features of newspaper coverage of Mexican and Chinese industrialization is the very limited systematic reporting on wages paid to production workers in those countries. Nevertheless, a move from the U.S. to a country with underemployed and underpaid people may make for possible higher profits.

The fact is however, that since the Second World War, until the close of the twentieth century, there has been a dramatic shift in the importance of production worker wages compared with salaries of administrative employees – all classes. In 1947, for every dollar in production wages paid in U.S. manufacturing, salaried employee payments amounted to 31 cents. As we have seen, by 1996, for every dollar of payment in production wages, the payments to salaried, (administrative) employees amounted to another dollar. Typically neglected in accounts about moving U.S. production offshore is reference to the scale of administrative salaries in the corporate management of U.S. industrial firms, which now equal or exceed the total outlays for production worker wages.

There is, of course a second and perhaps more important effect from the process of deindustrialization of the U.S. Closing production facilities in the United States while expanding offshore production, as in Mexico or China often means unloading workforces that have made significant advances along the disalienation, (unionization) route in favor of employing workers who are beginners in that process.

COLLAPSE OF WHOLE INDUSTRIES THE BIG THREE LEAVE DETROIT

The U.S. auto manufacturers provide another case in point. Once the jewel in the crown of American industry, they too are participating in the ravages of deindustrialization.

For a decade after World War II, the automobile industry in the United States not only paid the highest wages in the world to its industrial workers but also produced the lowest-priced cars in the world, measured in price per pound of vehicle. Detroit pay scales were two to three times those of autoworkers in Western Europe. But the average productivity of labor in the U.S. auto industry, thanks to greater mechanization and more refined organization of work, was about three times that of Western Europe. As a

result, the Detroit product was so attractively priced that it not only dominated the U.S. market but was also exported to markets around the world.²²

By 2001, forty-six years later, the situation had been transformed and imports supplied 61 percent of the U.S. auto market.²³ This process of failure is all the more significant because the U.S. auto industry is more than an industrial colossus. Detroit made mass production an American and then a worldwide force. Many people were reluctant to accept that these castoff industrial workers should redeploy themselves into new-looking “services” or high-tech occupations. After all, if the United States no longer excelled at rolling cars off the assembly line, what was left? “The air has been full of recriminations about who is at fault. The top managers of the Big Three have singled out the high wages of U.S. autoworkers as the prime cause of their lack of competitiveness in the marketplace.”²⁴ This focus was demonstrated in the 2003 contracts with the UAW, which established a two-tier wage system for workers in auto parts factories.

New-hires at two big parts supplier companies, Visteon and Delphi, will now be paid “competitive wage and benefit levels” approximately \$10 lower than those companies’ current wage of over \$25 an hour. The new low tier would be permanent, with no “grow-in” to former levels. The exact wage is unknown.

Delphi (30,000 workers) was spun off from GM in 1999 and Visteon (22,000) from Ford in 2000. At that time, the union maintained the wage parity that had always existed between Big Three assembly, powertrain, and stamping workers and those who made parts.

This year, the UAW reversed course and took explicit action to lower wages for 52,000 of its members who have not yet been hired. Current Visteon and Delphi workers will be allowed to escape their two-tier factories by transferring to Ford and GM plants, as openings occur. When bargainiers settle on the two-tier wage, it will not be submitted to members for ratification.²⁵

Despite the setback to American autoworkers’ wages, the fact remains that the German and Japanese success in gaining a greater share of the U.S. auto market has not been due to cheaper labor. In 2001 the average hourly compensation cost, (money plus non-monetary benefits) for U.S. autoworkers was \$28.93. This was surpassed in Germany where workers received \$30.60, and nearly matched in Japan at \$25.00.²⁶ Despite these similar compensation costs, in 2001, Germany shipped cars worth \$15 billion to the US. Japan had even greater success with \$31 billion. Together these two countries are responsible for 43 percent of all car imports in the U.S. market.²⁷

The Big Three American Auto companies, (now Big Two since Daimler Chrysler is German) have responded by becoming less American. Whole lines of their cars are manufactured abroad and imported. Ironically, *Japanese* auto firms, Toyota and Honda, have opened plants in the U.S. while GM, Ford and Chrysler have been closing them.

Recall that, during the 1950s, U.S. auto worker wages of two to three times those of Western European workers proved no barrier to the U.S. industry’s holding its domestic market, as well as sizable markets abroad. Detroit offset the wage differential with high

productivity of labor and capital. Why is the U.S. auto industry unable today to compensate, as it once did so effectively, for differences in labor and other costs?

Once again, the answers have been well known for decades:

The place to begin is with the quality of the means of production themselves, and then the methods of production organization.

Machine tools are the basic production equipment of the auto industries. By 1978, 76 percent of the machine tools used in the U.S. auto industry were ten years old or older. Its production equipment was older than the average for all U.S. manufacturing (69 percent ten years old and older).²⁸

The managers of the Big Three failed to modernize and upgrade their basic production equipment. Many production divisions were treated as “cash cows,” being milked of their assets.²⁹

But the development of major differences in the organization of production between the U.S. and the Japanese auto industries probably had the major effect on productivity. The core of the matter is this: major Japanese auto firms have learned the connection between stabilization of production rates and increased productivity of labor and capital, as well as the wide range of cost savings that are made possible when a production system is operated in a sustained, stable pattern.³⁰

Similar considerations bear on the efficiency even of entire industries. Thus, when an industry is operated in a highly unstable fashion, it suffers penalties in lowered productivity of both labor and capital. In the case of U.S. subway car manufacturers, which I will discuss more fully in chapter 5, the lack of a stable market, (owing to chaotic and unpredictable government financing) encouraged U.S. firms to abandon the industry. This contrasts with the cases of France and Japan, where governments supported local subway car manufacturers, it being understood that these firms would also gain customers in other countries.

STABILIZING OUTPUT FOR PRODUCTIVITY GAIN

Whatever is being manufactured in a production facility, stabilizing operations is also of crucial importance. As stability is achieved, the rates of output of individual machines become more consistent so one is able to predict future rates of production with a narrower margin of error.

Two ideas are crucial here: stable operation of a single machine – or an entire factory – means working at rates within predictable and acceptable limits. Average output of machines, even single worker operations, improve as there is less variation in output rate. When a power plant is operated in a stable manner, more electricity is produced for each ton of fuel that is consumed. The rolls in steel rolling mills last longer when they are used at more even, less varying speeds.³¹

Secondly the stabilization of output rates of individual machines in a factory helps raise the productivity of the system as a whole. When output is stabilized in an entire factory, there are fewer breakdowns, and the average life of machines, for instance metal-cutting tools, is increased, resulting in a higher degree of utilization of the production machines (the

actual production time increases as a proportion of the available time). At the same time, stabilization lowers scrap rates and improves the quality of product.

Under these conditions it becomes possible to operate an entire factory with a substantially reduced inventory of work in process, since “buffers” are not required between operations as insurance against breakdowns. For similar reasons inventories of raw materials and purchased components can also be reduced. Those reductions, in turn, make possible a larger output in proportion to the working capital invested in the plant. Also, owing to the higher productivity of individual machines, and lessened requirement for factory floor space for in-process storage, a smaller fixed investment in machines and factory buildings becomes feasible. All told, the stabilization of output in a factory as a whole makes possible substantial improvement in the productivity of capital and thereby – automatically – in the output per worker hour.

More is involved here than a simple statistical harmony between men, machines and materials. Stabilization of output in an entire production system requires a method of organizing work that invites and encourages sustained cooperation among workers, technicians, engineers and administrators. Such cooperation is the vital element that permits a production system to respond to the requirements of stable operation. The top-imposed control system favored by American managements has yet to match the results in stabilization that are gained thru cooperation.

An early description and diagnosis of a stabilized system of work organization in an auto factory appeared in my 1958 book, *Decisionmaking and Productivity*.³² There the operation of the automobile- and tractor-producing factories of the Standard Motor Company in Coventry, England were described and analyzed. The main effects of a stable production system were all there: reduced variation in output rates; unusually high productivity of capital and labor; strikingly low inventories of work in process per vehicle produced, close attention to preventive maintenance and markedly efficient performance of emergency maintenance to prevent downtime; a sharp increase in average output per worker and output per unit of capital investment that corresponded with the stabilization of output rate in the factory as a whole; very high product quality.*

* The system of work organization that operated in the factories of the Standard Motor Company involved a management-union agreement on a “gang system” whereby worker groups took responsibility for the detailed allocation of work tasks. Production bonuses were paid to the gang’s members on the basis of the output of the group as a whole. In the tractor factory, the entire factory formed one gang, with output measured by quality-accepted tractors at the end of the line. Every worker, technician, engineer and administrator in the factory knew the production targets for the day and the week and could therefore gauge every individual work performance in accordance with the requirement of the factory’s goals. There are, of course, alternative possible ways of inducing cooperation for the detailed performance of production work.

In the Standard Motor Company the production-oriented management defined itself, saying “we try to give a service to the factory.” With respect to the familiar process of expansion of managerial control and costs, the top management at Standard said: “We just don’t want to have people who do empire building. We make it a point of going after a person who attempts to enlarge his staff.”³³ As might be expected, the Standard Motor Company operated with substantially lower administrative costs than did other automobile firms of Great Britain, which included Ford and General Motors.^{34 35}

Creating a stable environment for production is crucial for the well being of any industry. Deindustrialization and outsourcing strike at the heart of this.

THE MACHINE TOOL INDUSTRY: DECAY AT THE ROOT

We can gain a key insight into the state of American production capacity by looking at the nuts and bolts industry that make the very means of production. Machine tools are the sophisticated machines used to precisely shape metal. As such they are crucial to making the machines that are in turn used to make all of the high tech gismos we have come to depend on. Without machine tools, modern industry as we know it cannot exist. I examined this basic question in my study, *Our Depleted Society*:

Machine tool production is the industry most basic to a society utilizing metal and machines. Machine tools include all those machines that remove metal in the form of chips (cutting machines), or that shape metal by pressing it between dies (forming machines). The products of this industry, the lathes, milling machines, drills, and the like, are used to manufacture all other machines including those specialized toward particular products: plastics, textiles, farm machines, computers, printers.³⁶

The last data on age of machine tools in U.S. factories comes from 1996. We find that 1.4 million, or 60 percent of all machine tools in the U.S. are upwards of 11 years old. The stock of forming machines is especially aged, with 71 percent being 11 + years old.³⁷

The growing age of machine tools in use in American factories demonstrates that the basic manufacturing equipment for American industry is not being replaced. This has two negative consequences: productivity improvements offered by new equipment are forgone; and secondly, the continual decay in machine tool stock puts the U.S. at a progressively greater disadvantage vis-à-vis other industrial and industrializing countries that have invested in new machinery. Why has U.S. industry delayed in making this investment? The firms using the existing machine tools have insisted that the savings from the introduction of new machines must pay off the initial cost of the machine within a period of perhaps four to five years, or even sooner.

This means that it is not enough for new machines to have a higher output per hour of use, that is, greater productivity. It means that it is also necessary for the new machine’s price and cost of operation to be low enough to register in the form of payback of the initial cost within 4 or 5

years. But the prices of new US-made machine tools during the last decades of the 20th century were too high to be attractive to machine-tool users on a large scale. The result is that the demand for new machine tools has been so low that the metal-working machinery stock of the United States industry has aged, leaving the U.S. with a progressively less efficient set of basic production machines available to them.³⁸

Traditionally, U.S. machine tool factories did not use mass production techniques, (despite their product being the very basis of mass production). Furthermore, U.S. machine tool firms diversified the line of products they produce, partially to differentiate their own products from the competition. As a result U.S. machine tool firms wound up producing small quantities of many different models. This raised the cost of manufacturing and became the basis for a high selling price. Industry-wide standardization as a method to cut manufacturing costs was ignored by management because it would allow customers to use replacement parts or accessories from competing firms. (Indeed, to my knowledge, there has been no extensive study of the cost saving that might be obtained in the machine-tool industry if standardization were to be widely practiced.)

Until 1978, the U.S. machine-tool industry was a premier producer for the industrial markets of the world. By 2002, the industry shipped only \$1.9 billion of machine tools, *exporting* \$0.8 billion, while the U.S. *imported* \$2.3 billion.³⁹ The Pentagon and NASA – which purchased an increasing proportion of machine tools sold in the U.S. – were not interested in sponsoring research for developing production methods intended to advance manufacturing productivity of the machine tool industry. Since industry and non-military branches of government both neglected to support university research on improving production capability, relevant departments in U.S. engineering schools focused on satisfying the needs of the military and space agencies. The engineering schools, lacking financial support from the non-defense agencies or industry, conformed to the defense / space agencies' interests and treated production capability as a less important function. In Japan, however, different priorities ruled. The government encouraged work on modularization and standardization in order to create low-cost products that had a wide-range of commercial applications. Furthermore Japanese firms were the first to apply numerical and computer control automation technology, (which had first been developed in the U.S.) to small and medium size machine tools that were affordable for small and medium size companies. Clearly the Japanese machine tool industry had achieved a comparative advantage.

PROFITS FROM DECAY? – THE CASE OF SINGER

If we want to see the consequences of decades of deindustrialization we can take the case of Singer sewing machines.

The story of the U.S. sewing-machine industry offers a good example of how moneymaking and basic economic deterioration can go hand in hand. The 113-acre Singer Company factory in Elizabethport, New Jersey, was the last place in the United States where household sewing machines were manufactured. In 1947, the factory employed around 10,000 people. By 1964 it was down to 3,000 workers. The factory closed in the late 1960's. What happened to the once major United States sewing-machine industry as a producer of these equipments?

The essential weakness of Singer's operation in Elizabethport was this: In order to produce sewing machines that were competitive with the output of Japanese workers, who were at that time paid one sixth of United States wages, it was essential that productivity in the U.S. plants exceed the productivity of operations in Japan by a factor of about five. But Singer's management failed to install the modern high-productivity equipment required to make the needed gains in productivity. The production workers in Elizabethport were stuck with operating a stock of largely aged equipment. In 1963, 40 percent of Singer's foundry equipment was at least twenty years old, contrasted with a national average of 5 percent. Furthermore, 80 percent of the Singer factory's metal-cutting machine tools were over twenty years old, contrasted with a national average of 37 percent.

Singer also resisted the use of standardized components for its sewing machines to a truly remarkable degree. They not only manufactured their own screws, but also the very tools for making screws to their own special dimensions. Manufacturing specialized screws may have once seemed like a shrewd way to generate a captive spare-parts business, but by the middle of the 20th century manufacturing parts in relatively small quantities was undoubtedly more expensive than using readily available mass-produced parts. Equally important in preventing productivity gains, Singer failed to redesign their product in order to simplify its manufacture. Singer used 91 colors for their machines and kept over 80,000 different parts in inventory. They stocked about 100 kinds of flat, metallic washers with less than 1" outside diameter. The Singer Company, (as well as its former U.S. competitors) did not bother to do the job of standardization that was so competently mastered by the Japanese sewing-machine industry.

The story of American firms who neglected industrial research, investment in modern machinery, standardization and simplification of design has been repeated many times and was certainly important in the ongoing disappearance of U.S. manufacturing industries such as: machine tools, commercial electronics, household appliances, televisions, clothing, internal combustion engines, turbines and generators, office equipment, and machinery of all kinds.⁴⁰

Nevertheless, even without mechanization and systematic production organization, Singer developed a strong financial position. The Singer Company and its reputable sewing machines had been household words in the United States and other countries for over a century.⁴¹

By 2003 Singer had manufacturing facilities in China and several in Brazil. Management and marketing offices and facilities exist in 17 countries. The management controls 17,500 employees, (mainly in retailing its products) and is confident of its ability to "offer competitive, state-of-the-art computer[ized] machines and full-featured mechanical machines by working closely with third-party manufacturers who supply the Company with product. The Company plans to establish a new sewing machine research and development center in Shanghai in 2003."⁴²

The formula for Singer's financial success adds up to this: expansion of production and sales abroad; expansion of ownership in the United States; expansion of sales in the United

States, based upon overseas production with low-wage labor; contraction of sewing-machine production within the United States, owing to failure to offset U.S. costs by improved productivity. By the conventional tests of financial success the Singer record is entirely commendable. By the test of participation in a viable American production system, the Singer record is calamitous.

If this sort of pattern were the performance of a few firms, a rarity, a set of exotic contrasts, then there would be little point in pursuing this analysis. But the combination of financial success and decaying productive capability has become a far-ranging pattern that threatens the viability of the American industrial production system at its base.

DIVERSITY OF DEINDUSTRIALIZATION

Basic manufacturers like Singer are not the only casualties of deindustrialization. Workers and engineers at high tech companies like the Boeing Corporation have also paid the price. This lead Boeing engineers to unionize and stand up for their basic rights as workers.

The engineers at the Boeing Corporation in Seattle have been responsible for the main design and production work for Boeing Aircraft and Space Vehicles. They are concerned that the apparent Boeing top management policy has caused their U.S. employment to drop by about 50 percent during the first few years of the new century. Evidently, Boeing management has desired to abandon much of its metalworking production. Instead it has instituted a series of outsourcing contracts negotiated with assorted subcontracting firms in Japan, China, Russia & Poland. All told, the domestic content of successive Boeing aircraft has been declining sharply. Among the engineer unionists at Boeing, the judgment is that Boeing top management is moved by an anti-union imperative that influences where work is to be done.

As of June 2002 Boeing management reported that “currently some 5,300, or about 3 percent of the 174,000 employees of Boeing and its subsidiaries, are based outside the United States.”⁴³ In Moscow, Boeing has organized a design center that accounts for 500-600 jobs. In their search for further outsourcing of engineering design work Boeing has established a research and technology center in Spain, which began with fewer than 100 employees, but with prospects for further expansion. Boeing’s pattern of “going global” is informed by the current business model that favors free movement of capital that will maximize short term financial gain for the firm and with no sense of obligation to the larger United States community. While Boeing strategy may be very well suited to the desires of its shareholders, it should be contrasted with the business strategy of the Airbus Company, which has become a major competitor to Boeing.

The business and technical strategy of Airbus combines the usual business interest together with a social interest. The latter stipulates that a corporation has an obligation to invest domestically – in the case of Airbus this means investing and subcontracting for their production work among the principal countries of Western Europe. It means more than that, because, once committed to the importance of investing domestically, the Airbus managers and engineers have an automatic interest in contributing to the competence of the assorted suppliers who serve Airbus throughout Western Europe. Boeing managers and engineers are under no such obligation. The competence and technical / economic well being of American workers and engineers are not part of their sphere of normal concern, only the near term profitability of the company and the value of its stock.

A focus on short-term investor interest as a prime decision criterion therefore tends to run counter to public interest. So while Boeing strategy with ever more outsourcing from the

U.S. may be great for shareholders, it does not contribute to the continuity and competence of employment among Boeing's blue and white-collar workers.

Nearly 12 years ago, as the Soviet Union collapsed, Boeing started recruiting out-of-work Russian aerospace engineers to collaborate on space and commercial-airplane projects. At first, their numbers were small. But the Russians did good work for as little as \$5,400 a year. Boeing began to view its Russian staff as the vanguard of a new push into the European market, and in 1998 it opened its Moscow Design Center, which a year ago boasted nearly 700 engineers. From the day the center opened, engineers at Boeing's Seattle hub had voiced concerns. Last year, [2002] those fears boiled over.

Boeing's 22,000 engineers in Seattle, represented by the Society of Professional Engineering Employees in Aerospace (SPEEA), threatened to walk out in December, when their contract expired, if the Russian venture wasn't cut back. Partly as a result, Boeing reduced its corps of Moscow engineers to about 350, though the company [management] won't be precise. "The underlying fear is that we're giving away our technology and our competitive advantage, and we're losing jobs," says Dave Landress, a test engineer and union rep. The union has good reason for concern: Struggling to reduce costs to cope with the sharp falloff in orders from the ailing airline industry, Boeing has laid off 5,000 engineers since 2001.

And Boeing still plans to shift jobs to Russia in the future, company insiders say.

The strategy is to integrate the cheaper Russian engineers into the design process for everything Boeing makes. The Russian staff--spread over seven cities--already works on everything from redesigning jet-wing parts to designing components for the International Space Station. Boeing's [management's] other goal is to develop a 24-hour global workforce, made possible by a satellite link from Russia to Boeing's Seattle offices.⁴⁴

Workers at many other U.S. companies have faced the same struggles as the Boeing engineers. Not all of them have been as vocal or as visible in their efforts to protest profit driven "globalizing" managers. Let us look at some other key examples.

Levi Strauss – the famous blue jean manufacturer – ended U.S. production on Sept. 25th 2003, by closing the last of its U.S. plants. Levi's closed a total of 7 plants in 2002-3, putting 5,600 U.S. workers out of jobs. This was on top of 24 previous factory closings that put 13,000 employees out of work from 1997 – 2002. Some aspects of the Levi's story deserve particular attention. The Levi's employees who were laid off in 2002-3 were given a substantial severance package including pay, medical coverage and an enhanced pension plan. This is cited only to show that the corporation has a large amount of cash at their disposal.* They have opted to using their funds for paying severances, relocating

* When I asked Levi Strauss what they spent on Research & Development [for technology and productivity improvement] they responded by hanging up the phone!

manufacturing abroad and focusing on marketing rather than manufacturing as the strategic activity of the management.⁴⁵

The Carrier Corporation, the largest manufacturer of air conditioning equipment in the world, is planning to close its two manufacturing plants in East Syracuse- which provided employment for generations of Syracuse residents—laying off 1,200 workers. Carrier, “an emblematic employer ... said it would not build its air conditioners in New York State any more simply because the company can make more money by building them elsewhere”.⁴⁶ The manufacturing of refrigeration units is to be relocated to Singapore, in part to be closer to the Asian-dominated shipping container industry to whom Carrier is a supplier.⁴⁷ This is an example of how the loss of one manufacturing industry can cause supplier industries to follow.

In a survey story on deindustrialization in Rockford, IL (*New York Times*, January 4th, 2004) we learn about “The Joyless Recovery”. This dispatch found that 11,000 jobs had been terminated in that city between 2000 and 2003. This included 1,000 jobs in a factory producing for Motorola. That firm shut down the plant in Rockford and invested \$1.9 billion in China.

The staple Rockford firm, called Rockford Power Train has “stopped producing most of its components at home and started buying almost all of them abroad – from South Korea, Poland, Germany, and most of all China”. In parallel, “the number of employees in Rockford has dropped from 800 in 1988 to 250 and the work is limited, largely to assembly, quality control and management”.

In parallel with these strategic moves of deindustrialization, a new and rapidly expanding enterprise is depicted in Rockford IL. “Machinery from closed factories is scrapped, and the metal is sent to Chinese steel mills.”

On November 23, 2003 Julia Bauer reported in *The Grand Rapids Press* that the Electrolux Corporation was planning to shut down its refrigerator factory in Michigan and move the plant to Mexico.

Greenville’s massive Electrolux refrigerator plant isn’t losing money. It just isn’t raking it in fast enough. The CEO of the huge Swedish appliance maker explained that squeeze in a telephone conference with stock market analysts in Stockholm last month.

... On the same day, Carl Hoag and 2,700 other Electrolux employees arrived at work to hear the company’s stunning announcement it may shut the 100-year-old Greenville factory in 2005 and move production to Mexico...

It could save Electrolux \$81 million a year. But shutting the plant would be crippling to employees and the town where the plant is the largest employer and taxpayer. The specter haunts workers who fear losing jobs that pay \$13 to \$15 an hour, health insurance, paid vacations and pensions.

* A reader with a reasonably long memory may recall that this is precisely the pattern that once prevailed before World War II as dismantling of many U.S. industrial facilities and transportation units, (like bridges, elevated roadways) proceeded with the scrap metal sold off to Japan’s steel mills which were rapidly expanding at that time.

“You see some of them go right to their knees bawling. They don’t know what they’re going to do. It just tears your insides out. It’s too devastating,” said Hoag, president of Local 371...

“About 200,000 jobs have gone from the border area in Mexico over to China,” Straberg [CEO of Electrolux] said in the conference call. “When I met President Fox here in Stockholm . . . he was very concerned about that, and was very supportive of any investment that companies like us would make in these areas.” ...

...Last week, the Greenville City Council ponied up \$12,500 for a plant-construction feasibility study. The Michigan Economic Development Corp. is paying the other half of the \$25,000 bill to hire a consultant for the study that includes cost estimates...

Hoag [the union president] said he is frustrated with the way state officials have figured the plant’s costs, at roughly \$55,000 per employee. “They take the gas bill, the light bill, the trucking bill, and the wages for the plant manager, the engineers, and the line workers, and pool them all together, then they divide by how many workers there are,” Hoag said. The average Greenville worker makes about \$13 an hour, he said. With insurance and other benefits, the total jumps to more than \$25 an hour. That’s 10 times the hourly wages and benefits in Mexico, a cold fact that scares Greenville workers...

[According to Evans, Electrolux spokesman,] “all other major competitors have established significant manufacturing bases for refrigerators in Mexico.” Those include General Electric, Whirlpool, Maytag, Samsung, LG (formerly GoldStar) and Haier. Last week, Michigan-based Whirlpool said it was expanding its Mexican refrigerator plant to shift production of side-by-side units from Fort Smith, Ark. ...

To date, Electrolux has eliminated 4,330 workers, shaving its work force to 78,000 worldwide. * ⁴⁸

From examining a careful biography of Jack Welch’s stewardship of General Electric we learn that “GE has either closed or sold 98 plants in the United States during the Welch era, 43 percent of the 228 it operated in 1980”.⁴⁹ More recently we learn from *Business Week* ⁵⁰ that General Electric currently has 10,000 employees in China, will have 20,000 workers in India by 2004, and is investing in a \$64 million technology and R&D center in Shanghai, which will employ an additional 1,200 by 2005. The type of work which is being moved by GE to the India and China facilities include finance, information technology support, and R&D for medical, lighting and aircraft.

* A transcript of Straberg’s conversation with analysts is available online at electrolux.com/node571.asp then select the Oct. 21 “Questions and answers from the report for the first nine months of 2003.”

THE DEINDUSTRIALIZATION OF N. CAROLINA *

Deindustrialization not only affects whole companies, it has transformed the lives of workers in whole states. To give a closer picture of how the loss of manufacturing jobs is occurring in everyday America, here is the state of North Carolina as an example. In the late 1800's manufacturing in North Carolina was focused largely on cigarette manufacturing. At the turn of the 20th century, cotton and furniture manufacturing became more important but it was only in the 1950's that the value of manufactured goods surpassed agricultural production. Indeed, by the 1990's, compared with all other states, North Carolina had the greatest percentage of its workers in manufacturing jobs.⁵¹ More recently, however, North Carolina has been subject to the same factors that are killing U.S. manufacturing nationwide.

Manufacturing employment in North Carolina dropped from 834,300 in January 1990 to about 599,400 by September 2003—a loss of 28 percent in less than 13 years.⁵² By February, 2001 there were “fewer than half the 400,000 textile and apparel jobs that dominated North Carolina employment in 1980.” Several decisions affecting investment in North Carolina had a crucial effect on the subsequent development.

The unionized heavy industry of the Upper Midwest never took root in North Carolina. Instead, the state became the South's most industrialized through thousands of low-wage, low-skill jobs like those in textile mills. ... in 1990, a group of business leaders told United Airlines not to build a maintenance plant that would have added 5,000 high-paying jobs to the state, because its union shop would not be welcome. The airline instead built in Indianapolis.⁵³

From 1990 to 2002, there were 933 reported factory closings in North Carolina, putting 142,891 people out of work.⁵⁴ The ten largest closings are given here.

Ten Largest Factory Closings, North Carolina, 1995-2002					
Date	Company	City	Product	Jobs Lost	Reason for Closing
6/1/1996	Black & Decker Corp.	Tarboro	Power Hand tools	900	Cut Costs
6/1/2002	Abbott Laboratories	Laurinburg	Anesthesia / Med. Kits	900	Consolidation
5/1/1998	Stevco knit Fabric Company	Wallace	Fabric	846	Restructuring

* Why North Carolina? North Carolina is perhaps the only state that has been keeping track of factory closings. While state data is commonly available on employment, the database created and published by the Employment Security Commission of North Carolina, that records details of individual factory closings in their state is truly unique. Their database is compiled from surveys of newspaper accounts of plant closings statewide, and from reports submitted directly to the Employment Security Commission. The fact that this database is such an exception, and that no similar database exists at the national level, means that gauging the extent and pace of deindustrialization, (factory closings) is severely hampered.

8/1/1995	Brown & Williamson Tobacco Corporation	Reidsville	Cigarettes	840	Corporate Restructuring
1/1/1999	Windmere Durable Holdings	Asheboro	Small kitchen appliances	840	Consolidation
7/1/1996	Perdue Farms Inc.	Siler City	Poultry	800	Restructuring
6/1/1997	Dayco Products	Waynesville	Ind. Hose/Belts	770	Competition
12/1/1996	Fieldcrest Cannon, Inc.	Eden	Blankets	750	Division Sold
2/1/2002	Ansell Golden Needles	Wilkesboro	Industrial knitted gloves	750	Relocating to Mexico
12/1/2000	Swift Denim	Erwin	Denim	740	Cost reductions

There was also a definite clustering of factory closings from 1990 to 2002. That is what appears in the following ranking of factory closings with *Textile & Knit Goods* and *Apparel* leading the pack, followed by solid representation from *Furniture*, *Electronics*, *Motor Vehicle (Parts and Assembly)* and *Food Products*.

North Carolina Factory Closings, Selected Industries (1990 – 2002)	
Textile & Knit Goods	234
Apparel	178
Furniture	75
Electronics & Electrical Equipment	30
Food Products	17
Motor Vehicle Industry (parts, assembly)	17
Industrial Equipment & Machinery	12
Plastics	10
Medical Equipment & Pharmaceuticals	8
Wire Products	7
Paper Products	6
Air Conditioning Equipment	5

As in other states, multiple factory closings in particular industries have a particularly destructive effect on workers in that region. Workers with similar skills and work experience are left to compete for jobs at the remaining factories. When the laid-off workers are forced to take up work in a new industry, the experience they accumulated in their previous line of work may be wasted.

Beyond the loss of employment: once a set of the factories for a particular industry type has been shut down, it becomes difficult to restart production. Specialized people and equipment are dispersed. Training of new workers for that field stops, and suppliers to that industry may also have a difficult time staying afloat. In this barren environment, setting up a factory may require bringing in expertise from abroad. Furthermore, a new factory will be competing against foreign firms who are in motion, and are working in an environment where necessary inputs are available. *For these reasons it is likely that most of the U.S. manufacturing sectors that were shut down will never be revived except as part of a national reindustrialization effort.*

U.S. FIRMS MOVE WHITE COLLAR WORK ABROAD

By now people have noticed that the loss of jobs to foreign locations is not limited to the manufacturing and blue-collar workers.

Movement of U.S. White Collar Jobs “Offshore”⁵⁶		
	2005	2015
LIFE SCIENCES	3,700	37,000
LEGAL	14,000	75,000
ART, DESIGN	6,000	30,000
MANAGEMENT	37,000	288,000
BUSINESS OPERATIONS	61,000	348,000
COMPUTER	109,000	473,000
ARCHITECTURE	32,000	184,000
SALES	29,000	227,000
OFFICE SUPPORT	295,000	1,700,000
TOTAL	588,000	3,300,000

The kinds of jobs that are being lost in the U.S. to foreign countries are changing. Increasingly, jobs in professional fields like aeronautical engineering, software design, stock analysis and research & design are being shifted abroad. Major Wall Street firms like J.P. Morgan, Morgan Stanley, Goldman Sachs, Lehman Brothers and Citigroup have begun establishing departments in India to handle various tasks such as research, data cleansing, creation of presentations and banking & mutual fund operations.⁵⁷ Intel, an important maker of computer processors, has 1,000 software engineers in China and India and will increase jobs in India to 3,000 by 2005. Boeing has cut 5,000 U.S. engineers since 2001 and plans to hire at its design center in Moscow that now employs about 700 engineers. Oracle is increasing its Indian software design, customer support and accounting staff to 4,000. IBM plans to lay off 4,730 of its well-paid technical staff, “some of whom may be required to train the foreign workers who will replace them”.⁵⁸

New companies have sprung up that specialize in contracting out customer service calls, paperwork processing and other office work to locations in the Third World and the numbers of jobs they represent is increasing. These firms have been garnering major new clients. Accenture will have 5,000 people in the Philippines by 2004. Consecos has 1,700 in India and plans for 3 more centers. Delta Air Lines has 6,000 reservation and service workers in India and the Philippines. HSBC has 4,000 employees in China & India. The pattern is repeated endless. And workers pay the price

COMPELLED TO TRAIN YOUR REPLACEMENT

High tech workers are no longer immune to these corrosive trends. Indeed, in some cases, they are literally forced to train their replacements.

Scott Kirwin clung to his job at a large investment bank through several rounds of layoffs last year. Friends marveled at the computer programmer's ability to dodge pink slips during the worst technology downturn in a decade.

Kirwin is among what appears to be a growing number of American technology workers training their foreign replacements - a humiliating assignment many say they assume unwittingly or reluctantly, simply to stay on the job longer or secure a meager severance package.

... The L-1 [visa] allows companies to transfer workers from overseas offices to the United States for up to seven years - ostensibly to familiarize them with corporate culture or to import workers with "specialized knowledge."

Tech bellwethers including IBM, Hewlett-Packard, Cisco Systems, Oracle and Microsoft use L-1 workers but won't disclose how many they import. Many bring in workers through consulting firms, usually Indian companies such as Tata Consultancy Services, Infosys Technologies and Wipro Technologies.

Dallas-based Texas Instruments also imports L-1 electrical engineers. With U.S. colleges graduating fewer U.S.-born engineers and the population of foreign-born science graduates mushrooming, TI has to look overseas for talent, spokesman Dan Larson said.⁵⁹

Here's what typically happens: U.S. workers getting pink slips are told they can get another paycheck or beefed-up severance if they're willing to teach workers from India, China and other countries how to do their jobs. The foreign workers typically arrive for a few weeks or months of training. When they leave, they take U.S. jobs with them. The U.S. employees who trained them are then laid off. Employers say they need workers to train replacements to ensure a seamless transition, but the practice is coming under fire.⁶⁰

During 2003, economic development in India has attracted special attention as that country's economy has been made a target by major Wall Street firms, including J.P. Morgan, Lehman Brothers, and Morgan Stanley, joined a chase for more highly skilled Indian labor. One American senior financial analyst reports that "a junior ... research analyst from an Ivy League school costs \$150,000 a year" ... "while an Indian equivalent from a top business school would cost \$35,000 a year."⁶¹ A J.P. Morgan spokeswoman indicated that "hiring inexpensive junior level researchers in India will free J.P. Morgan's highly paid senior analysts to spend more time with the companies they cover and with investors."

Salary Comparisons, United States & India		
	United States	India
Software Programmer	\$66,100	\$10,000
Mechanical Engineer	\$55,600	\$5,900
IT Manager	\$55,000	\$8,500
Accountant	\$41,000	\$5,000
Financial Operations	\$37,625	\$5,500
Source: Paras Group, 2002; International Labour Organization		

Accordingly, J.P. Morgan plans to hire a few dozen researchers in Bombay by the close of 2003. Morgan Stanley “which already has investment banking and mutual fund operations in India will employ a similar number of researchers this year, also in Bombay. Both teams will consist of junior level analysts collecting data, analyzing balance sheets and working on basic financial models.” “Merrill Lynch has an investment banking, brokerage and asset management joint venture in India as well as a technology development center to build proprietary software for its global operations.”⁶² Goldman Sachs expects to have an Indian unit with 250 employees. Also, very large firms like Citigroup “are expanding the Indian side of their corporate and investment banking activities.” All told outsourcing of business-process jobs by American companies is predicted to grow to 3.3 million jobs and \$136 billion in wages by 2015, up from \$4 billion in wages in 2000.⁶³ It is expected that most of the work will go to China, India, the Philippines and Russia.

Specialists in these financial operations “see the trend accelerating. Mr. Gentle of Deloitte Consulting has forecast that “financial services companies will move a million jobs, mainly back-office and technology related work to India by 2008.”

We are further advised that “at top Indian business schools like the Indian Institute of Management, the prospect of a job with top Wall Street firms has students excited.” The *New York Times* reports that the average entry-level salary for graduates of a top Indian business school was \$13,226 for jobs in India.⁶⁴

What is the U.S. government’s role in all this?

The federal government of the United States has been actively playing a part in all these processes of outsourcing work from the United States. A principal federal government operation is contained in the Overseas Private Investment Corporation, (OPIC), a federal agency that provides loans and investment insurance to U.S. companies doing business around the world. A critical assessment of OPIC operations was released by the Cato institute, a conservative, libertarian think tank in Washington D.C. According to the Cato report, “nearly all of the agency’s assistance goes to large corporations, such as Citibank, Enron, Caterpillar Corporation and, Bechtel...”⁶⁵

What is government doing? Branches of state and local governments have begun to use offshoring as well. For instance the Indiana Department of *Workforce Development*, (which most would assume is for developing a workforce actually located in Indiana) gave a \$15.2

million contract to the U.S. affiliate of Bombay based, Tata Consultancy Services to maintain and update its computer programs, utilizing their expertise in *offshore development* in India to arrange for their employees in Bombay to perform the work. (The contract was later cancelled by Indiana Governor Joe Kernan following public protest.)⁶⁶

THE TRUE SCALE OF U.S. UNEMPLOYMENT

Nevertheless, the true human cost of these harsh patterns of deindustrialization, in numbers of unemployed workers, has been significantly undercounted.

At the close of 2003 the official count of jobless in the U.S. was 5.9 percent. Yet a *Los Angeles Times* analysis explains how the actual number of unemployed was really 9.7 percent.

The nation's official jobless rate is 5.9%, a relatively benign level by historical standards. But economists say that figure paints only a partial — and artificially rosy — picture of the labor market.

To begin with, there are the 8.7 million unemployed, defined as those without a job who are actively looking for work. But lurking behind that group are 4.9 million part-time workers ... who say they would rather be working full time — the highest number in a decade.

There are also the 1.5 million people who want a job but didn't look for one in the last month. Nearly a third of this group ... were too depressed about the prospect of finding anything. Officially termed "discouraged," their number has surged 20% in a year. Add these three groups together and the jobless total for the U.S. hits 9.7%, up from 9.4% a year ago.

A new way that people seem to be joining this category is by getting themselves declared disabled. ... eligible for government payments while removing them from the unemployment rolls... From 1983 to 2000 ... the number of non-elderly adults receiving government disability payments doubled from 3.8 million to 7.7 million.

Another way in which people forgo an appearance on the unemployment rolls is if they decide to go into business for themselves. There are 9.6 million people who say they are self-employed full time, a number that rose 118,000 last month. Without the recent increase in self-employed, the jobless number would look much worse.⁶⁷

Economists at the Washington D.C. Economic Policy Institute have calculated the balance, by state, of jobs gained (as from exports) and the jobs lost (as from imports that displaced U.S. workers).⁶⁸ From 1993, the start of NAFTA, through 2002, the U.S. trade deficit with Canada and Mexico accounted for "displacement of production that supported 879,280 U.S. jobs." *There was net job loss in every state*, and 26 states each had more than 10,000 job losses. The top 5 job losing states are shown here.

California	115,723
New York	56,793
Michigan	51,466
Texas	50,270
Ohio	46,593

These numbers mark the formation of concentrated job losses, wipeout of whole manufacturing industries and creation of ghost towns.

WAGES AND HEAVY MACHINERY

Ironically, the Chinese government has been following a very different course of action. While the cost of labor has been regarded as a central issue in labor-intensive manufacturing operations, the picture is rather different in the production and utilization of important classes of heavy machinery. On January 1, 2003 the *New York Times* reported, "China has awarded a potentially lucrative contract to lengthen the world's first commercial magnetic-levitation rail system to cities surrounding Shanghai". All this after the prime ministers of Germany and China took a test ride on the new high-speed train, which is propelled by magnets. *The Times* reported that "The train reached its designated maximum speed of 266 miles per hour over the nineteen miles between Shanghai financial district and its main international airport..." The German firms that designed and produced the new Maglev train were Siemens and ThyssenKrupp. New Maglev trains covering 180 miles and costing more than \$5 billion are being negotiated.

The critical point here is: China, a country with one of the *lowest* wage standards in the world for industrial production work, is buying new railroad equipment from German firms which pay the *highest* production worker wage in the world. The full meaning of this astonishing situation has not registered in United States industrial circles where the production worker's wage is treated as the primary determinant for locating industrial work. Typically, the importance of quality in heavy machinery like railroad equipment, and major capital goods is often overlooked. Furthermore rail equipment must withstand heavy usage and reliability and safety is indispensable.

Heavy industrial machinery also includes the important class of earthmoving mining and construction machines. These equipments are typically large, costly and quality is worth even premium prices to the purchaser. This is so because unscheduled downtime and breakdowns in such equipment spells schedule failure in production or transportation. The cost of lost work time and potential penalties for late completion on large capital investment projects far outweighs any savings to be had from purchasing less reliable machinery.

The role of American exports to China is of particular relevance to the realm of heavy earth moving, construction equipment. The *New York Times* reports on Dec. 2nd, 2003 that China has emerged as the world's largest market for heavy-duty construction equipment, and companies from around the world have rushed exports there to meet its needs.

And further: "China is also trying to build an interstate highway system more extensive than America's in just fifteen years, while practically every large Chinese city is building or has just completed a big new airport."

All this creates a demand for equipment and Chinese construction companies have been buying big vehicles at a rate dwarfing sales in all of North America or Europe. This major market for heavy earthmoving and related construction equipment has bearing on another side of U.S. trade with China, namely the role of capital goods produced in the United States and capable of finding a ready market in China.

At the same time that Chinese manufacturing industries are growing at astonishing rates, important international companies like Caterpillar (U.S.), Daewoo (Korea), Komatsu and Hitachi (Japan), are all undertaking major investments of their own to build this class of equipment in China. "Caterpillar, by far the worlds largest maker of construction equipment is interested in buying stakes in 'four or five' Chinese equipment makers..."⁶⁹ These

comments bear directly on the quality of capital goods and tell us why there is this booming market in China for American, Japanese, Korean and other heavy earth moving equipment manufacturing firms.

Keith Bradscher reports from Shanghai to the *New York Times* that Chinese domestic companies producing this class of equipment have been selling them for as little as \$55,000 a piece, half the price of American and Japanese models. Nevertheless, the Chinese domestically produced equipments in this class hold just 10 percent of the domestic market, “because their models break down frequently and it can take up to three weeks to get replacement parts, according to an officer of the Off-Highway Research firm.”⁷⁰

The crucial point here is that quality has major bearing on the usefulness of heavy transportation, construction, earthmoving, mining and related machines. Thus, frequent breakdowns of heavy earth-moving equipment spell breakdown of production schedules on large capital investment projects.

Owing to these considerations, says Bradscher, “all this will make it harder and slower but not impossible for Chinese companies to challenge the likes of Caterpillar in its home market someday.” But that day has not yet arrived, and a substantial period of industrial – technical development will be required before China will be able to export in this class of capital goods. This is the judgment of an official of the Association of Equipment Manufacturers, a U.S. trade group headquartered in Milwaukee.⁷¹

PROFITS WITHOUT ANY PRODUCTION AT ALL

In the U.S., it has been business as usual. The end of the 20th and opening of the 21st centuries was not only the scene of computerization of an endless array of activities, but also a time when the populace was persuaded that it could, and should participate in the market for securities. Thus, a major part of American society made itself a participant in the boom and bust of all manner of corporate securities. Jonathan A. Knee—in a masterly review for the *New York Times* (Oct. 26th 2003) of two principal books on the Enron debacle—captured the essence of the speculative boom and bust ... enlargements of money values without any substantive base. Taken together the first and final paragraphs captured the essence of the development.

The technology and telecommunications boom made fools of all of us. From the corporate executives who promised results that in hindsight seem absurd to the ordinary day traders who convinced themselves that they were channeling the legendary investor Benjamin Graham, all were overcome with a complex mixture of credulity, jealousy, vanity and greed that made the boom possible. In between were the enablers -- the regulators, bankers, analysts, consultants, accountants, lawyers, credit agencies and journalists who could have done something to stop the madness, but did nothing until way too late. Even this group seems to have been in part genuinely swept away with the euphoria of the age; for instance, Goldman Sachs did not just take the Internet grocer Webvan public, it invested at least \$100 million of its own money at an astounding valuation. The difficulty in distinguishing the delusional from the dishonest is why prosecutors are having such a hard time bringing successful indictments in even the most obvious cases of fraud and why social historians will kill many trees trying to come to grips with what really

happened....⁷²

He concluded his review with the following,

One of the defining characteristics of the mind-set of the recent boom was an irrational belief that stocks (as well as operating results and salaries and investment returns) could continue to go up indefinitely. This belief was often coupled with a conviction that we were personally responsible for this inexorable rise in value. Many of us arranged our business and personal affairs consistent with these delusional expectations and beliefs. When it all came crashing down, psychologists' offices were filled with patients sure that the crash reflected some personal failure.

For more than a decade, tens of millions of Americans lived with the confident understanding that money values represented real wealth. The collapse of the money values in the major U.S. securities markets obviously compelled the question: if this was real wealth, what happened to all of it? The participants, of course, were victims of a massive self-delusion. The enormous enlargement of paper money values in the securities markets was without any connection at all to the production of real things: homes to live in, clothes to wear, schools that confer education, food for daily living, medical care when required, and machine tools that are required for the production of everything else. None of these were multiplied by the enormous enlargement of securities values. And the collapse had the main effect of concentrating, more than before, the money markers that continued to be respected as legitimate claims on goods and services. By 2002, the *New York Times* showed that 100 top telecom industry executives collectively made upwards of \$6.2 billion dollars from sales of their firm's securities – a number without linkage to any presumed "value" contributed by these executives.⁷³ These sales represented part of a transfer of wealth from the majority of the population to the managerial elite. During the 1990's, only the top 20 percent of the population increased its share of the nation's income.⁷⁴

¹ Since 1986, I have been a fairly close observer of departure of industrial firms and facilities from the United States to foreign locations. While I can't say how many such events I took note of, I am fairly sure of one characteristic: in no single case did the proprietors of an industrial enterprise claim that they were making the move outside the United States, that is, "outsourcing" in order to save the profitability of their enterprise. In every instance that came to my attention the management indicated that the removal from the U.S. to a foreign location was to serve the goal of greater profitability. I underscore this consideration because during the last two years I have watched numerous processes of deindustrialization in the United States – and as reported in the trade and general press – and in no single instance was there a claim that the move was done in the service of retaining profitability. In every instance it was announced as serving the cause of greater profitability and capital accumulation.

² Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), p. xi.

³ The domestic production data are contained in : U.S. Census Bureau, *Annual Survey of Manufactures, Value of Product Shipments: 2001*, Washington, D.C., 2003. The data on imports and exports is contained in: United States International Trade Commission (USITC), *Trade Dataweb, U.S. General Imports, U.S. Total Exports*. <http://dataweb.usitc.gov>

From these two sets of data, it is possible to calculate the percent of the U.S. market served by imports. Shipments data for *Apparel and Leather* from U.S. Census, Manufacturing, Mining and Construction Statistics, "NAICS Historic

Timeseries”, Shipments Table: www.census.gov/indicator/www/m3/hist/naicshist.htm . NAICS Codes for: Machine Tools (Cutting): 333512; Machine Tools (Forming): 333513; Automobiles: 336111; Iron & Steel: 331111; Farm Machinery: 333111; Construction Machinery: 333120; Mining Machinery: 333131; Oil & Gas Machinery: 333132; Textile Machinery: 333292; Semiconductor Machinery: 333295; Office Machinery: 333313; Computers & Peripherals: 334111, 334112, 334119; Broadcasting & Wireless: 334220; Audio & Video: 334310; Semiconductors: 334413; Electromedical Apparatus: 334510; Apparel: 315; Leather Goods: 316.

⁴ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), pp. xii – xiii.

⁵ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), p. xiv.

⁶ Seymour Melman, *Our Depleted Society* (Holt, Rinehart & Winston, 1965).

⁷ For a review of the development of the post-industrial line of argument see: Daniel Bell, *The Coming of Post-Industrial Society*, (Basic Books, 1973), pp. 36, 37, 461, 462.

⁸ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), pp. xvi – xvii.

⁹ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), pp. xvi- xviii.

¹⁰ “Exporting America: The List”, *Lou Dobbs Tonight*, CNN.com

¹¹ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), p. 202.

¹² Ibid.

¹³ *International Herald Tribune*, “Mazda net doubles as sales surge in Europe”, Nov. 6, 2003.

¹⁴ These contrasting data on the Mazda and Chrysler firms, together with comments by Japanese and American observers, were broadcast by CBS Evening News on April 30, 1981., cited in *Profits Without Production* p 204–5.

¹⁵ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), p. 205.

¹⁶ Ibid.

¹⁷ Gretchen Morgenson, “Explaining (or Not) Why the Boss Is Paid So Much”, *New York Times*, Jan. 25, 2004.

¹⁸ Ibid.

¹⁹ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), pp. 204-5.

²⁰ “China Isn’t Hijacking Jobs: Blame multinationals and a savings-short U.S.”, *Business Week*, Oct. 6, 2003.

²¹ New York Times, December 22, 2003 ,ERIC A. TAUB “For a Few Dollars Less, TV Making Moves Abroad”.

²² Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), p. 183.

²³ *Annual Survey of Manufactures, Value of Product Shipments, 2001*. & USITC, *Trade Dataweb*, NAICS code 336111.

²⁴ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), p. 183.

²⁵ Jane Slaughter, “Auto Union Embraces Two-Tier Wages” *Labor Notes*, October 2003. www.labornotes.org/archives/2003/10/b.html

²⁶ U.S. Bureau of Labor Statistics, *Hourly Compensation Costs For Production Workers In Manufacturing, 30 Countries Or Areas, 40 Manufacturing Industries, Selected Years, 1975-2001*. Aug. 2003, p. 118, [ftp://ftp.bls.gov/pub/special.requests/ForeignLabor/industry.txt](http://ftp.bls.gov/pub/special.requests/ForeignLabor/industry.txt).

²⁷ USITC, *Trade Dataweb*. U.S. General Imports, NAIC Code 336111. <http://dataweb.usitc.gov>

²⁸ National Machine Tool Builders Association, *Economic Handbook of the Machine Tool Industry, 1980/81*, p. 250.

²⁹ Michael Boretsky, *U.S. Technology: Trends and Policy Issues*, U.S. Department of Commerce, Oct. 1973, Table 21.

³⁰ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), p. 184.

³¹ Sebastian B. Littauer, “Stability of Production Rates as a Determinant of Industrial Productivity Levels,” *Proceedings of the Business and Economics Statistics Section*, American Statistical Association, Sept. 10-13, 1954.

³² Seymour Melman, *Decision-Making and Productivity* (John Wiley, 1958).

³³ Seymour Melman, *Decision-Making and Productivity* (John Wiley, 1958), p. 114.

³⁴ Ibid., ch. 10. The management policies of Standard changed with mergers into Leyland and British Motors, and the sale of the tractor factory to Massey-Ferguson.

³⁵ Seymour Melman, *Profits Without Production* (Alfred A. Knopf, 1988), pp. 184-6.

³⁶ Seymour Melman, *Our Depleted Society* (Delta, 1965), p. 49.

³⁷ Association for Manufacturing Technology, *The Economic Handbook of the Machine Tool Industry, 2003-2004*, pp E3-E4. Unfortunately, the age of machine tools beyond 11 years has not been reported, making it impossible to know the percentage of tools that are truly *antiquated*, being 20 + years old.

³⁸ Seymour Melman, *Our Depleted Society* (Delta, 1965), pp. 50-51.

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- ³⁹ Association for Manufacturing Technology, *The Economic Handbook of the Machine Tool Industry, 2003-2004*, pp. A-2. and Seymour Melman *After Capitalism* (Alfred A. Knopf, 2001), p. 54.
- Seymour Melman *After Capitalism* (Alfred A. Knopf, 2001), p. 62.
- ⁴¹ Seymour Melman, *Our Depleted Society* (Delta, 1965), pp. 56-8.
- ⁴² Singer N.V., *2002 Disclosure Statement And Report* (April, 2003), p. 29.
- ⁴³ Katherine Beck, "Going Global" *Boeing Frontiers Online*:
www.boeing.com/news/frontiers/archive/2002/june/cover.html
- ⁴⁴ *Business Week*, "The New Cold War At Boeing", February 3, 2003.
- ⁴⁵ *Mercury News*, "Levi Strauss Tightens Belt", April 9, 2002 & *Business Week*, "Is It China's Fault?" Oct. 13, 2003.
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- ⁴⁷ "Layoffs by Carrier Corp. Strike Syracuse in Heart", *New York Times*, Oct. 7, 2003.
- ⁴⁸ "Greenville vs. Mexico", *Grand Rapids Press*, Nov. 23, 2003.
- ⁴⁹ Thomas F. O'Boyle, *At Any Cost: Jack Welch, General Electric, and the Pursuit of Profit* (Alfred A. Knopf, 1998), p. 33.
- ⁵⁰ *Business Week*, "Is Your Job Next?", Feb. 3, 2003, pp. 50-60.
- ⁵¹ David Firestone, "A Chief Exporter, and Not at All Pleased About It", *New York Times*, Feb. 23, 2001.
www.nytimes.com/2001/02/23/national/23CARO.html
- ⁵² Bureau of Labor Statistics, *State at a Glance, North Carolina: Manufacturing*: www.bls.gov/eag/eag.nc.htm
- ⁵³ *New York Times*, "A Chief Exporter, and Not at All Pleased About It".
- ⁵⁴ Employment Security Commission of North Carolina, *Announced Business Closings and Permanent Layoffs*, <http://eslmi12.esc.state.nc.us/mls/>. Note: the data are not comprehensive and do not meet the Labor Market Information Division standards for accuracy. Staff in the Employment Security Commission neither analyze nor evaluate the accuracy of these reports.
- ⁵⁵ *Ibid.* Note: This chart of factory closings is compiled from best available data and may *understate* incidents of factory closings.
- ⁵⁶ Forester Research as cited in "Is Your Job Next?", *Business Week*, Feb. 3, 2003.
- ⁵⁷ "As It Tries To Cut Costs, Wall Street Looks To India", *New York Times*, Oct. 8, 2003.
- ⁵⁸ "Is Your Job Next?", *Business Week*, Feb. 3, 2003; "Bracing for the Blow", *New York Times*, Dec. 26, 2003.
- ⁵⁹ Rachel Konrad, "American Computer Programmers Face Ultimate Insult: Training Overseas Replacements", *San Francisco Gate*, Aug. 10, 2003.
- ⁶⁰ "Workers Asked to Train Foreign Replacements" *USA Today*, April 6, 2004.
- ⁶¹ "As It Tries To Cut Costs, Wall Street Looks To India", *New York Times*, Oct. 8, 2003.
- ⁶² *Ibid.*
- ⁶³ John C. McCarthy, Forrester Research, "3.3 Million US Services Jobs To Go Offshore", Nov. 11, 2002:
www.forrester.com/ER/Research/Brief/Excerpt/0,1317,15900,FF.html
- ⁶⁴ "As It Tries To Cut Costs, Wall Street Looks To India" *New York Times*, Oct. 8, 2003.
- ⁶⁵ Ian Vasquez and John Welborn, Cato Institute "Reauthorize or Retire the Overseas Private Investment Corporation" *Foreign Policy Briefing*, 2003.
- ⁶⁶ Louis Uchitelle, "A Missing Statistic: U.S. Jobs That Went Overseas," *New York Times*, Oct. 5, 2003; *Computer World* "State Agency Cancels Controversial Outsourcing Deal", Nov. 25, 2003. & Tata Consulting Website: www.tcs.com/0_about_us/offshore/
- ⁶⁷ "Jobless Count Skips Millions" *LA Times*, Dec 29, 2003. See also, D. Dembo and Ward Morehouse, "The Underbelly of the U.S. Economy: Joblessness and the Pauperization of Work in America", Council on International and Public Affairs, (Apex Press, 1997).
- ⁶⁸ Robert E. Scott, "The High Price of 'Free' Trade", Economic Policy Institute – Briefing Paper, www.epinet.org.
- ⁶⁹ Keith Bradsher, "Chinese Builders Buy Abroad", *New York Times*, Dec. 2, 2003.
- ⁷⁰ *Ibid.*
- ⁷¹ *Ibid.*
- ⁷² *New York Times*, "House of Gas", Oct. 26, 2003.
- ⁷³ *New York Times*, "Bubble Beneficiaries" Aug. 25, 2002.

⁷⁴ U.S. Census Bureau, *Money Income In The United States: 2000* (Washington, D.C., Sept. 2001). Cat#P60-213, Fig. 4, p. 11.

Chapter 4 - Producing in the United States: Beyond War Economy

At this writing more than 800 American firms have transferred parts of their production operations to low wage countries, especially China and Mexico. *Business Week* of May 24, 2004 reports that “Some 3 million factory jobs—one in every six—have been lost since the last peak in mid-2000.” The characteristic explanation that managers have offered for these moves is that only by discarding the high wage labor force of the U.S. will they be sufficiently profitable to be assured of ability to continue as managers of industrial enterprise.

The immediate effect of these moves is the creation of a mass of unemployed American workers and the transformation of many communities into “ghost towns”. Is all this inevitable? Is it true that industrial production of consumer goods and machines—including capital goods—is no longer feasible in the U.S., paying U.S. wages?

Must U.S. Firms Move Manufacturing Outside the United States in Order to Compete?

What factors can make U.S. based producers cost competitive vs. production “offshore”? Such questions typically raise another issue: can U.S. productivity offset Chinese wages? However, by examining the cost structure we find that a great portion of the costs borne by U.S. industrial firms are incurred outside the realm of production in the form of salaries to administrative workers. In 1996 within U.S. manufacturing firms, for every hundred *production* workers there were 53 salaried, *administrative* (and technical) employees. This Administrative : Production ratio as measured here in terms of people is also reflected in terms of cost. By 1996, for every dollar paid to production workers an equal sum was paid to the salaried employees. This equality of payments tells you immediately that the conventional method of slashing the costs of industrial products by lowering production worker wages is not the only option available. However, in most U.S. manufacturing firms the idea of reducing the salaries of administrative employees is almost unheard of.* (Recall that Chapter 3 shows U.S. corporate chiefs being paid 531 times the employee average.)

Apart from administrative costs and materials, the main body of expense in manufacturing production is controlled by the productivity of labor and the productivity of capital. The degree of mechanization of work has a controlling effect on the average output per production worker, (i.e. the productivity of labor). But for every work task there are alternative production methods and equipments that can be graded on the basis of intensity of mechanization – in essence, the size of the capital outlay per particular piece of equipment.

In the centuries-long history of manufacturing industry, managers and their engineers have responded to the rising wages of production workers by developing means of production by which the average output per production worker man-hour could be progressively increased. At any given time and for any given task, a manufacturer confronts an array of possible production equipments ranked in terms of the capital outlay required for each one: the higher the wages of production workers, the greater the capital outlay that can

* For the long-term record of administrative overhead in U.S. firms see: S. Melman, “The Rise of Administrative Overhead in the Manufacturing Industries of the United States, 1899-1947”, *Oxford Economic Papers*, New Series, Vol. III, No.1, January 1951; also for the more recent record see S. Melman, *After Capitalism*, Op. Cit. pp. 178,179.

be justified in order to increase the output per production worker man-hour. This is called the alternative cost of labor to machinery.

In the United States the average “Hourly Compensation Cost”¹ of a production worker man-hour to management was \$21.33 by 2002. Therefore any management seeking to minimize the cost of output per production worker was justified in making a larger capital investment per production worker man-hour in the U.S. as compared to the design of production methods where the “Hourly Compensation Cost” is much lower – e.g. Mexico \$2.38.

For example, the Pioneer Corporation of Japan has invested in new manufacturing facilities in China and we learn that “Pioneer is hiring workers by the hundreds to fill jobs on the line that pay about \$95 a month, above average for the region.” Assuming 170 hours per month (a 40 hour week), the China wage would be about \$0.56 per hour. Compare that with the cost to management of a production worker man-hour in Japan. By 2002 it averaged \$18.83 per hour, 33 times as much as the Chinese wage. Accordingly, it is no surprise at all that “in China, paying workers ... to do rote tasks like hunching over tiny chip assemblies and affixing pinhead-size pieces is cheaper than installing the industrial robots that would typically be used to do the same work in Japan.”²

This is a clear demonstration of the role of alternative costs of labor to machinery, and their effect on production methods and productivity. The same considerations apply, of course, to American firms making investments in China. American firms are making the same calculation.

CONSUMER GOODS: MAKING SHOES IN THE US: NEW BALANCE RUNS THE PRODUCTIVITY RACE

This is a demonstration of what is feasible when technology is developed to respond to alternative cost of labor to machinery so as to make possible economic production, and then some, in the United States. Here are crucial parts of the story of New Balance Athletic Shoes. Stroll through New Balance Athletic Shoe Inc.’s factory in Norridgewock, Me., and you will see workers using high-tech skills to make a low-tech product. Well-trained, \$14-an-hour employees work in small teams, perform a half-dozen jobs, and switch tasks every few minutes. Some operate computerized equipment with up to 20 sewing-machine heads running at once. Others control an automated stitcher guided by cameras, which allows one operator to do the work of six using ordinary sewing machines.

Now, visit a Chinese subcontractor’s factory that makes the same shoe for New Balance. You might think you had traveled back in time 100 years. In the factories that manufacture shoes for New Balance, Nike, Reebok International, and other U.S.-based athletic-footwear companies, hundreds of women hunch over sewing machines much like ones used in their grandmothers’ time. The story is the same across China and in Indonesia and Vietnam. Young women in their teens or early 20s, with little education and few skills, put in long hours six days a week, usually performing the same task in mind-numbing repetition for 20 cents to 40 cents an hour.

... Over the past five years, New Balance has doubled its U.S. workforce, to 1,200, and opened a fifth U.S. factory. But back in the mid-1990s, sales exploded--from about \$300 million to \$1.1 billion today. The company couldn’t ramp up U.S. production fast enough to keep pace, so it turned to subcontractors to fill the gap. The share of its shoes produced at home fell to 25%, with the rest coming from Asia. Over time, [owner, Jim] Davis says, he aims to get back to the 70% production New Balance maintained in the U.S. five years ago.

How can New Balance make shoes at home when Nike, Reebok, and the rest can't? Mainly by adopting the latest manufacturing techniques used by U.S. companies in higher-skilled industries. *Employees start with 22 hours of classroom instruction on teamwork and other techniques and get constant training on the factory floor. They work in teams of five or six, sharing tasks and picking up the slack for one another to make sure they get everything done.* [emphasis added]

... *The combination of teams and technology* has slashed the cost disadvantage of producing in the U.S. New Balance's U.S. workers turn out a pair of shoes in just 24 minutes, vs. about three hours in the Asian factories that make the same product, says Herb Spivak, New Balance's head of operations. If the U.S. workers were no more efficient than those in China, New Balance's labor costs in the U.S., where it pays \$14 an hour in wages and benefits, would be an untenable \$44 per pair of shoes. But the company has whittled the cost down to \$4 a pair vs. \$1.30 in China, where labor costs are about 40 cents an hour. "[In Asia,] their labor is so inexpensive that they can waste it," says Spivak. "Ours is so dear that we come up with techniques to be very efficient." [emphasis added]

Davis says New Balance can remain competitive under these circumstances. The remaining \$2.70 labor cost differential is a manageable 4% of a typical \$70 shoe. And it's offset by the advantages of producing in the U.S., says Davis, where he can fill store orders faster than rivals and whip out style changes more quickly.³ A 2003 report on New Balance brings us up to date on that firm's wage and production development.

Starting wage is \$15 per hour including benefits -- a fair wage in the belt of economically depressed towns along the Merrimack River, such as Lawrence and Haverhill where many of the workers live.

To offset labor costs many times higher than their overseas suppliers, New Balance pushes efficiency in materials. The company has a 95 percent yield on materials, said Vachon, recalling in his early career when 70 percent was considered efficient. A 530-sq.-ft. piece, for example, can yield 216 pairs of women's shoes cut in roughly two hours. The factory uses four basic patterns, but can make 13 different men's and women's styles from those standards.⁴ ...

... Bucking the trend toward moving, [out of the U.S.] New Balance has actually expanded its U.S. manufacturing base, and expects to grow it by another 10 percent in 2003....

"I can't see [shifting all production overseas], to be quite honest," said Jim Tompkins, president and COO of New Balance, which produces approximately 25 percent of its products in five factories throughout Maine and Massachusetts. "We are privately held and that is a statement we want to make," he said. "There is no one to tell us otherwise." According to Tompkins, New Balance's U.S. factories allow the company to deliver product more quickly domestically, and also give it the opportunity to monitor a shoe's development more closely. "There's nothing more interesting and fun than developing a product, then walking down the hall six months later and seeing it," he said.⁵

This new production system instituted by New Balance is a demonstration of classic, innovative development of manufacturing methods. Every main aspect of operations was addressed: economy in use of raw materials; major innovation in production machines;

training production workers; reducing variability in timing of production operations; reducing scrap rates; and reducing frequency of unscheduled down-time.

This New-Balance agenda of changes in production methods contrasts with the more frequent employer focus on worker wages and union demands which so many employers strive to escape by “going offshore”.

CAPITAL GOODS: CAN U.S. FIRMS PRODUCE THE CAPITAL GOODS NEEDED FOR U.S. INFRASTRUCTURE RENEWAL?

MACHINE TOOLS—MADE IN CALIFORNIA

Haas Automation is a designer and manufacturer of Computer Numerically Controlled, (CNC) machine tools, including machining and turning centers and controls. (The Haas web site is at www.haascnc.com and includes rich detail not only on products and facilities, but also on the organization of work.)

Haas Automation is privately held and therefore has no published record of profit and loss and related data. The firm began operations in 1983 and at this writing has 750 employees, of whom nearly 200 are engineers. The offices and production facilities of Haas are located in Oxnard, CA.

Haas manufactures both the computer numerical controls (CNC) and the associated machine tools. Other firms that are principal producers of CNC controls for machine tools include Siemens, Fanuc, and Heidenhain (in Germany and Japan). In 2003 Haas Automation produced between 318-472 machines per month, with an average of 366 machines per month. This number of produced machine tools is built on the basis of a *schedule*. They are not individually built “to order”. Characteristically, the firm retains a one-month stock of machines as a continuing inventory.

Haas Automation strives to operate its production facilities on a three-shift basis: *one shift manned and two shifts unmanned*. Unmanned means that production operations are programmed and regulated by the CNC devices that can be set to regulate the performance of single machining centers or turning centers, as well as the transfer of work-pieces mounted on pallets among machine tools.

Haas makes extensive use of flexible manufacturing systems, robotic loaders, “just-in-time” production methods and lean manufacturing practices. Machine tools are linked to and controlled by the company’s ERP system, (enterprise resource planning – software that integrates many functions of an enterprise) which is also tied into the production schedule and inventory control.

Essentially, Haas operates a “machinery inventory bank” following the pattern of such an inventory system proposed in 1959 in discussions at Columbia University on the machine tool industry.*

Haas Automation places considerable importance on the idea of designing its machines and controls on the basis of “modules”. Thus the 59 horizontal and vertical machining centers identified in the Haas Model Guide all use many comparable modules including, for example, the tool changers. There is also commonality in many of the base castings used on the machining centers, and in the many components that appear frequently in machine tools – like linear guides, ball screws, and a variety of pumps.

* Those discussions focused on the problem of how to operate a stable production system for a machine tool industry instead of the established pattern of “boom and bust”.

Haas Automation makes its own gears, having decided some time ago that they could manufacture a better quality set of gear products with the gear making under their own supervision. Whereupon they purchased the requisite array of gear making machines, and operate them continuously.

The market for Haas machines and controls has been mainly among job shops. During the last five years however, they have been successful in entering the market of “second-tier” customers, like the manufacturing facilities of automobile firms. This extended interest in CNC machine tools on the part of the automobile manufacturing fraternity stems from an increasing interest in flexibility for product design. A commitment to using the more traditional “transfer-type” machines for fabricating automobile parts has had the automatic effect of committing the firm so invested to long-term production for a particular class of products. In contrast, the machining centers permit rapid change in product design while still retaining many features of machine control and transferring work in process among machining locations. This kind of versatility is facilitated by the use of pallet changer devices that hold and transfer products from one machine tool to another. (Haas includes appropriate types of pallets in its product line.)

Palletization of workpieces, sometimes with accompanying vehicles for pallet transfer among machines, may well be a growing option whose effects clearly will include facilitating mechanization of product movement among machining centers. Notably, some production designs use robots for inter-machine product transfer. Options for these purposes include setting up multiple machining centers in “cellular” units with palletized handling of workpieces.

Of course, it is still the case that in the job shop class of CNC machine tool operations, “hand” movement of workpieces among machines remains the customary method.

Haas management views the company as a producer of quality, affordable machines. With this understanding, new technology is implemented in ways that have a far-reaching effect across an array of machine tool types and therefore user industries. Accordingly, Haas is *not* a “cutting edge” company. It does not operate a separately designated research team for machine tool design. Instead, Haas relies on a stream of technological modifications that can improve the characteristics of entire classes of the Haas product line. The engineering staff of nearly 200, includes electrical, mechanical and “manufacturing” engineers whose combined skills contribute to modifications in product design and manufacturing methods.

To my knowledge, Haas Automation is the only manufacturer of machine tools to publish prices for its principal products in public view. Prices for Haas’s products are available on their web site: www.haascnc.com. Haas regards the publication of prices and the consequent curtailment of bargaining opportunities as a positive characteristic for the continued operation and future of the firm.

These details on Haas Automation are included because they demonstrate the feasibility of producing technically sophisticated capital goods in the United States and marketing them in the U.S., Europe and Asia. Note that there is a Haas marketing office and staff in Shanghai.

Haas Automation currently (Fall-Winter, 2003) regards the West European and the China market as important opportunities and challenges. In the case of China, the Haas management is aware of finance problems associated with the dollar-Yuan exchange value problem. With respect to China they also see it as an important positive factor that their machines are designed with a modular concept. It is expected that that will help in reaching Chinese markets because then there is greater interchangeability, readier replacement of components etc. For example: the modular design principle facilitates “servicing” capability

for Haas products; the circuit boards on the computer numerical controls are to a large degree interchangeable.

Haas is heavily involved in education programs throughout the U.S. and has established nearly 60 Haas Technical Education Centers at learning institutions around the country. One of these, the Factory for Advanced Manufacturing Education was established at Penn State University in 2000. With 10 Haas machining and turning centers and an associated portable “multimedia-broadcasting cart”, demonstrations of sophisticated machine tool operations can be brought into classrooms and auditoriums to facilitate discussion and training in Penn State’s industrial and manufacturing engineering programs. There are also Haas machines used at hundreds of other centers in high schools, community colleges, technical colleges, and universities nationwide. Thereby Haas managers generate a body of professionals trained in Haas CNC and machining technologies.

The firm is also noteworthy for the fact that it has no debt, is not obligated to banks for funding and is in the enviable position of striving to build market share. It has a position of strength for purposes of reaching diverse markets. Accordingly, the management of Haas sees itself as a target firm for many competitors, even as it has been striving to build market share.

To illuminate the further meaning of the Haas operation a comparison is made between approximately comparable machining centers offered by Haas and by an important competing firm, Mazak.* As you can see from the basic dimensions and characteristics identified here, these are machines with comparable capabilities. The Haas \$17,000 price advantage is substantial and probably derives from unusually close attention to economies due to the organization of work at Haas Automation.

Model	Mazak Nexus 410 A	Haas VF-2SS
Horsepower	25 HP	30 HP (Peak)
Number of tools	32	25
Tool change time	2.9 seconds	1.5 seconds
RPM	12,000 rpm	12,000 rpm
Rapid rate movement	1,471 inches / minute	1,400 inches / minute
X, Y, Z, travel	22” x 16” x 20”	30” x 16” x 20”
Price	\$73,900	\$56,900

COMPONENTS OF REINDUSTRIALIZATION – CAPITAL GOODS

In order to repair each category of infrastructure it is necessary to have the use of a set of specialized devices. This equipment, in turn is produced in factories that utilize machine tools to fabricate their component parts. These machine tools are the *core capital goods*, for

* Note: Mazak is a highly respected, innovative manufacturer of machine tools. The parent company, Yamazaki Mazak Corporation is headquartered in Nagoya, Japan with 4,000 employees worldwide, and branches in 15 countries, including production and servicing facilities in the United States. The Mazak website is at: www.mazak.co.jp

they are used to fabricate many types of useful equipments—as required for making railcars, wastewater treatment plants, earth moving machines, energy producing equipment, etc.

This connection between *capital goods* and specialized machines that are used to make every element of infrastructure is a vital link that helps to define the need for renewal of the means of production throughout the industrial system if the U.S. is to graduate from the present quagmire.

The most generalized formulation of the nature of capital goods is the following abstracted from the work of Dr. Jon Rynn.

Production required by a community takes place in a sequence of stages. The stage of production that is the focus of economics is *final production*. In the *final production* stage, factories use production machinery to create consumer goods. ...

But how were the machines and buildings that constitute the factories created? Machine tools – are the primary equipment. First, they can produce more of their own kind.

Machine tools also make production machinery; and *production machinery* is then used to create final goods and services.

What are the major planning methods that would be required to execute this Infrastructure program? There are formal methods for making detailed assessments so that one could know what outputs from particular industries are required for actually executing a production program that is defined by the Report Card on Infrastructure proposal. The methodology for that sort of operation is available in the form of the “input-output analysis” that is performed following the methodology once developed by Wassily Leontief.⁶

Four classes of products will have strategic importance as required basic inputs for a serious effort to carry forward the Report Card recommendations: steel, electricity, machine tools and computers.

Owing to the thoughtful work of Dr. Jon Rynn we have a helpful formulation of the role of such “capital” goods.*

THE ROLE OF CAPITAL GOODS IN PRODUCTION

Beyond machine tools there are several other strategically important technologies of production. Since the end of the nineteenth century, steel-making has been critical for the production of machines. Steel-making equipment is therefore used to make the steel for *production machinery*, machine tools, and for more steel-making machinery. Also, since the turn of the last century, electricity generation has been the most important form of energy conversion within the production process, allowing for the development of motors (most critically, in machine tools), the use of electric lances in steel-making, and most famously, the development of electronic machinery.

* From a paper by Jon Rynn to the 2003 annual meeting of the American Political Science Association. He formulated a pattern for appreciating the functional role of “capital” goods in a larger production system.

Computers, the most important form of electronic equipment, are dependent, since the introduction of integrated circuits in the 1960s, on a form of equipment called semiconductor-making equipment. All of these forms of machinery possess these crucial qualities: first, they are used to make more of themselves; second, they are used to make more of other forms of *production machinery*; and third, technological advances in one form of *production machinery* accelerates technological development in other forms of machinery (and other sectors of the production system as well).

The history of technology is replete with the positive feedback effects of change in one class of machines affecting change in a large set of different machines. The most critical type of semiconductor-making equipment is optical lithography equipment. Advances in this kind of machine allow for denser and denser central processing units. ... Advances in computers led to advances in machine tool design, in particular, numerically and then computer-controlled machine tools. Better machine tools then led to better precision glass cutting, among other things, which led to better optical lithography equipment.

Better computers led to more automated, highly-efficient steel factories; better kinds of steel led to better machine tools ... Better machine tools made mass production possible, because mass production is dependent on the ability to produce interchangeable parts, which can then be assembled in a final product using an assembly line, as opposed to custom-fitting each component to a particular car or machine. The declining cost of electricity-generation, itself a by-product of advances in machine tools, steel-making, and information-processing, led to better and cheaper machines and goods.⁷ As suggested by these formulations of “capital” goods, consider the recent quality of U.S. production of three classes of capital goods: electricity; machine tools; steel.

ELECTRIC POWER GENERATING MACHINERY

Unintended, the August 14, 2003 breakdown of electricity supply in Canada, the US Midwest and New England was a solid demonstration of the “capital goods” role of electricity. Vital manufacturing industries in all these areas were stopped, as were uncountable arrays of consumer activities. Unintended too was the unplanned test of the idea that production has become “old hat”, now succeeded by a “service economy”.

Soon after August 14, 2003, a federal government report was issued that included an assessment of basic failures in capital goods operation that led to this breakdown in electricity supply. Several industry reports addressing this breakdown identified a set of interlocking failures that contributed to the calamitous loss of power. The findings included the following.

- In one Ohio power company “workers could not act to halt an escalating crisis because they did not even know it existed”;⁸
- “The blackout could have been safely contained if not for the utility’s malfunctioning computers and inadequately trained control workers”;⁹
- There was a “failure by First Energy to do the most basic maintenance of the company’s transmission lines – namely the trimming of trees underneath and alongside the lines.”¹⁰ A variety of experts now say the findings were too narrow, ignoring the federal government’s role in the recent reshaping of the power industry;¹¹
- “Maybe the report doesn’t go there because the answer is not one that is comfortable politically”, said Alan H. Richardson, the president of the American Public Power Association;¹²

- “FirstEnergy was hobbled by the failure of a computer program that was supposed to set off alarms in the company’s main control room when power lines failed or were stressed beyond their limits. That, in turn, caused the computer system itself to fail, and then a backup system, as well. It meant that operators in the control room were getting delayed, incomplete information about the failures of transmission lines and power plants in their region.”;¹³

Commenting on the Report of the *U.S.-Canada Power Systems Outage Task Force*, John A Cosazza (a retired executive with *Public Service Electric and Gas of New Jersey*, stated: “The root causes that they name are not really the root causes. The root causes are that deregulation had ‘provided the incentive to maximize profits now rather than provide long range service,’ and basic maintenance like tree trimming.”¹⁴

The report of the *U.S.-Canada Power System Outage Task Force* triggered a set of assessments that indicated a need for fundamental power system change. Thus “Much of the broad picture the report paints of Aug. 14 (2003) -- the malfunctioning computer systems, the lack of information, the sequence of failures -- has been known for months. But the details released today lay out previously unknown layers of dysfunction, presenting the hours leading up to the blackout as almost a comedy of errors among the people who were supposed to know and control what was happening to that section of the power grid.”¹⁵

The federal government and its military-serving agencies have played a dominant part in enlarging funds for research and for graduate-student support, and in opening up new job opportunities for young engineers and scientists. One of the main effects of these initiatives following World War II was to induce the deans and faculties of American engineering schools to revise their curricula and research orientations to emphasize knowledge and training for servicing the expanding requirement of the military economy. Owing to the new emphasis on where the action was (money, jobs), there was a relative de-emphasis of manpower, attention and money in the universities and technical schools from training their students for civilian-industry technologies. Curricula and technical research in classic fields of civilian-engineering responsibility, like power engineering, were accorded lesser priorities.*

¹⁶

MACHINE TOOLS

The shortcomings of the U.S. machine tool industry, partly reported in chapter 3 deserve further detailing. As far back as the 1960’s graduate students in the Department of Industrial Engineering / Operations Research at Columbia University were writing papers that defined preferred practices for a U.S. machine tool industry. The recommendations were aimed at inducing greater productivity in the industry that supplied the machines that are used to produce all other machines. Nevertheless, decay in the industry has proceeded so that by

* I recall the comment of a senior electronics engineer, saying that during the 1950s and 1960s those who went into power engineering were “the dregs” of the profession. With this “I’m all right, Jack” outlook, this man’s main concern was to justify the priority accorded his brand of work, and never mind these awkward problems about energy supply and utilization. By implication such topics can be left to “the dregs.”

2003 two thirds and more of the supply of machine tools to American firms is dependent on imports, mainly from Japan and Germany.

The following practices were identified in the Columbia 1960 studies as important for optimizing the performance of the machine tool industry.

Modular design. This means fashioning a set of components that could have a place in diverse machine tools, thereby encouraging economies of quantity in producing sections of these machines.

Production equipment. The American machine tool industry has been undercutting itself by its failure to make use of the most productive machine tools that it produces for the manufacture of new machine tools.

Standardization. Formulating and applying a set of standards for machine tool components would produce substantial economies and improvements in reliability. But the machine tool industry associations declined to apply themselves to this task.

Numerical control systems. Even during the earliest period of introduction of CNC (Computer Numerical Control) it was clear that substantial advantages were to be scored if the design of the controls was carried forward in connection with the design of the machinery elements they were charged with controlling. The principal U.S. firms ignored this possible advantage.

Market fluctuation. The managers in the machine tool industry viewed themselves as unavoidably functioning within a framework of market forces that left them unable to forecast market demand. In fact, proposals were formulated, but never discussed by industry managers, for establishing a Machinery Inventory Bank, a financing institution designed to stabilize sales and production.

Stable production system. Managers in this industry gave little attention to the consequences of production operations at a “stable” rate. Evidence from diverse sources has demonstrated that stabilizing production operations yielded: reduction in unscheduled downtime; reduction in scrap rates; an increased percent of product falling within desired dimensions, and other specifications; enabling smaller inventories of work in process and major reduction in inventories of raw materials and components; all these in combination yielding increased productivity of the capital goods producing factories.

These desirable characteristics for optimizing productivity in the actual production of machine tools have been mainly absent from the factories of the U.S. machine tool industry. By 2003 however, the performance of U.S. machine tool builder, Haas Automation, Inc, included many characteristics like the ones identified above. They have been accompanied by substantial gains in terms of productivity of capital and labor, and competitive product pricing (discussed below).

MAKING STEEL

Steel continues to be the single most important material of choice for an enormous array of consumer goods and capital goods. The various structural and managerial limitations in the operation of American steel making firms have been discussed elsewhere.* These have included dismaying inattention to R&D for new production methods, especially among the older, larger steel industry firms. Nevertheless, two major factors have appeared in the 21st century that offer a fresh opportunity for American steel makers: a historically

* S. Melman, *Profits Without Production*, (Alfred A. Knopf, NY 1988), pp. 188-199.

unprecedented expansion in steel consumption worldwide, and concomitant market demand for steel; second, the development within the American steel industry of “mini-mills” whose major raw material is the scrap metal from discarded metal products. Mini-mill operating methods include sophisticated techniques for continuous casting that bypass major traditional investments in rolling mills.

As to the first factor, increased steel consumption. For the first time in many years there is a global steel shortage, largely driven by the rapid and massive growth in Chinese demand for every sort of raw material used in steel manufacture. Locker Associates, a New York firm that monitors the steel industry, reports that the *addition* to China’s steel capacity during the last ten years is greater than the entire capacity of the U.S. steel industry. Locker Associates report that in the spring of 2003 “when Chinese demand was particularly feverish, even U.S. producers were exporting to the mainland, and China essentially absorbed the world’s excess steel production ...”

All told, these market conditions have given the U.S. steel industry a new opportunity for internal renewal. This opens up fresh perspectives for technological advance and for stabilized employment in the U.S. steel industry.

Nevertheless, American conventional wisdom continues to hold that manufacturing in the United States cannot possibly produce goods to compete against the products of Chinese and the exploited battalions of workers in other poor countries. Workers in such countries may be paid \$72 / month to work 12 hour shifts, six or seven days a week.

HOW JAPAN’S FIRMS COPE WITH WAGE DIFFERENTIALS

From agile reporters at *The Wall Street Journal*, we have up-to-date reports on how several major Japan-based firms—Matsushita and Hitachi—have been sustaining production in Japan where industrial workers’ “Hourly Compensation Cost” (2002) is \$18.83 per hour. They do this while carrying out parts of their firms’ production in China paying Chinese workers about \$.56 per hour.¹⁷ “Big manufacturers such as Hitachi Construction and consumer-electronics giant Matsushita Electric Industrial Co. have boosted efficiency and can now make highly complex goods as cheaply in Japan as they can overseas.” During the 1990’s Japan experienced a similar situation as the U.S., losing manufacturing jobs to locations in China. Recently however, the Japanese manufacturing sector has been bolstered due to higher demand in China for Japanese products—including the machinery needed to produce various consumer goods.

Panasonic Factory Solutions, a branch of Matsushita, ... is one of the world’s biggest makers of insertion machines -- highly sophisticated industrial robots that stick tiny semiconductors and other components onto green circuit boards. The boards form the guts of electronic products which are being churned out in increasing volumes in China. The company’s machines contain up to 30,000 separate parts. The most popular model can punch 16 chips per second onto a circuit board, with a precision of five-hundredths of a millimeter -- about the width of a few grains of pollen. Panasonic Factory Solutions’ big-ticket machines see sales of only about 50 units each month. ... it’s more cost-effective to keep production in Japan, close by the company’s suppliers and research centers.

Japanese manufacturers of construction and mining equipment have also benefited from the boom in China. The largest pieces of equipment are even imported into China completed, instead of using Chinese labor for assembly. Hitachi Construction is fielding increasing orders for ultralarge power shovels -- behemoths as big as a house that manipulate truck-size scoops in strip mines. Instead of making these monster shovels overseas, Hitachi

Construction in September plans to expand production by renting a nearby factory. By contrast, midsize power shovels for building sites are mass-produced and they are generally put together in local markets. Of the nearly 3,000 that Hitachi Construction sold in China over the past six months, 2,200 were assembled in a factory in China's inland city of Hefei. But some 43% of the value of a made-in-China shovel comes from Japan. ... revenue jumped 25% in the year ended March 31. Hitachi Construction says it plans always to produce key components in Japan: the engine, computer controllers and the hydraulic valve. Concentrating production in one place saves on plant investment. It also leads to better machines. Japanese factories will also continue to produce components for consumer goods whose production is difficult and requires greater sophistication. Although simple circuit boards for cellphones are being made in China, multilayer boards for more advanced handsets are produced in Japan -- and are seeing sales rise, ... Digital-camera components, now mostly manufactured in Japan, will soon be produced in China as well. But Matsushita is likely to keep in Japan the production of hard-to-make key parts that are constantly upgraded, such as semiconductors and lenses. Japan's manufacturing expertise is having clear economic impacts. While the U.S. trade deficit with China surged 20% to \$124 billion in 2003, Japan's deficit with China shrank 24% to the equivalent of \$19 billion. This February [2004], Japan ran a monthly trade surplus with China for the first time in 10 years. Exports of Japanese machinery and electronic gadgets ... are among the biggest drivers of Japan's recent expansion.

If production competence of American manufacturing is to be restored, two major requirements must be met. First, a large population of engineers and blue-collar workers must become convinced that there are alternatives to every class of operation, and that ways for organizing work can make major differences with any given means of production. But more than that: a way is also needed to mobilize vast production talents and resources if the production competence of American industry is to be restored.

¹ Bureau of Labor Statistics, "International Comparisons of Hourly Compensation Costs For Production Workers In Manufacturing, 2002" USDL: 03-507.

² *New York Times*, (International Business), Feb. 17, 2004.

³ "Low-Skilled Jobs: Do They Have To Move?", *Business Week*, Feb. 26, 2001.

⁴ "Retro Trend: New Balance Commits to Increasing Its U.S. Factory Capacity", *Gale Group Business and Industry - FN*, April 7, 2003.

⁵ "Sole Survivors: Why Some U.S. Factories Are Still Making Footwear.", *Gale Group Business and Industry - FN*, April 7, 2003.

⁶ One of Wassily Leontief's basic works is *Input-Output Economics* (New York : Oxford University Press, 1986). The Columbia University library includes many studies done by Leontief and others using his methodology in the U.S. and other countries.

⁷ Jon Rynn, "A Systems-based, Production-centered Theory of Political Economy", presented at the 2003 Annual Meeting of the American Political Science Association.

⁸ "Basic Failures by Ohio Utility Set Off Blackout, Report Finds", *New York Times*, Nov. 20, 2003.

⁹ "Basic Failures by Ohio Utility Set Off Blackout, Report Finds", *New York Times*, Nov. 20, 2003.

¹⁰ *New York Times*, Nov. 19, 2003.

¹¹ "Ignoring a Forest for the Tree Trimming", *New York Times*, Nov. 24, 2003.

¹² *Ibid.*

¹³ *New York Times*, Nov 19, 2003.

¹⁴ *Ibid.*, Nov. 24, 2003.

¹⁵ Ibid., Nov. 20, 2003.

¹⁶ Seymour Melman, *Permanent War Economy* (Simon and Schuster, 1985) p. 72.

¹⁷ “As Japan Recovers, An Unlikely Source Gets Credit: China”, *Wall Street Journal*, May 4, 2004.

Chapter 5 - An Alternative To The Permanent War Economy: Reindustrializing the U.S. (Beyond a War Economy)

In order to move beyond the permanent war economy and reindustrialization, American engineers and workers not only must assume control over the way their work is organized. They must understand that there is an alternative. But, as this final chapter argues, they also need a way to mobilize the vast resources of American skills and production, a project that can lead the way to reindustrializing the U.S. economy.

This second requirement is reasonably fulfilled by the imaginative exercise from the American Society of Civil Engineers. Their Report Card that assigns a grade for each principal aspect of U.S. infrastructure is a workable outline for a national effort to reindustrialize, to restore production competence in the principal civilian industries of the U.S. For more than a century, American workers showed the way for excellence in manufacturing production in both consumer and capital goods. The major barrier to that restoration is the war economy whose inducements must be overcome if the reindustrialization of the U.S. is to be achieved. The great project—upgrading the main infrastructure elements of the U.S.—will cost an estimated \$2.3 trillion over a five year period. If executed within the framework that was detailed for 2003 Report Card for America's Infrastructure, (see Appendix B) it would produce a host of transforming improvements in the quality of American life.

A STRATEGY FOR REINDUSTRIALIZATION: REPAIRING AMERICA'S INFRASTRUCTURE

At the very time that major evacuation of industrial production has been taking place, the American Society of Civil Engineers was formulating and presenting their 2001 Report Card for America's Infrastructure.

ASCE 2001 report card for Americas infrastructure		
Roads	D+	One-third of the nation's major roads are in poor or mediocre condition, costing American drivers an estimated \$5.8 billion a year. Road conditions contribute to as many as 13,800 highway fatalities annually. Twenty seven percent of America's urban freeways — which account for 61% of all miles driven — are congested.
Bridges	C	As of 1998, 29% of the nation's bridges were structurally deficient or functionally obsolete, an improvement from 31% in 1996. It is estimated that it will cost \$10.6 billion a year for 20 years to eliminate all bridge deficiencies.
Transit	C-	Transit ridership has increased 15% since 1995 — faster than airline or highway

		transportation. Capital spending must increase 41% just to maintain the system in its present condition.
Aviation	D	Airport capacity has increased only 1% in the past 10 years, while air traffic has increased 37% during that time. Airport congestion delayed nearly 50,000 flights in one month alone last year. Congestion also jeopardizes safety – there were 429 runway incursions (“near misses”) reported in 2000, up 25% from 1999.
Schools	D–	Due to either aging or outdated facilities, or severe overcrowding, 75% of our nation’s school buildings are inadequate to meet the needs of school children. The average cost of capital investment needed is \$3,800 per student, more than half the average cost to educate that student for one year. Since 1998, the total need has increased from \$112 billion to \$127 billion.
Drinking Water	D	The nation’s 54,000 drinking water systems face an annual shortfall of \$11 billion needed to replace facilities that are nearing the end of their useful life and to comply with federal water regulations. Non-point source pollution remains the most significant threat to water quality.
Wastewater	D	The nation’s 16,000 wastewater systems face enormous needs. Some sewer systems are 100 years old. Currently, there is a \$12 billion annual shortfall in funding for infrastructure needs in this category; however, federal funding has remained flat for a decade. More than one-third of U.S. surface waters do not meet water quality standards.
Dams	D	There are more than 2,100 unsafe dams in the United States. There were 61 reported dam failures in the past two years. The number of “high-hazard potential dams” – those whose failure would cause loss of life – increased from 9,281 in 1998 to 9,921 in 2001.
Solid Waste	C+	The amount of solid waste sent to landfills

		has declined 13% since 1990, while the amount of waste recovered through recycling has nearly doubled. Most states have ten years' worth of landfill capacity and waste-to-energy plants now manage 17% of the nation's trash.
Hazardous Waste	D+	Effective regulation and enforcement have largely halted the contamination of new sites. Aided by the best clean-up technology in the world, the rate of Superfund clean-up has quickened – though not enough to keep pace with the numbers of new sites listed as the backlog of potential sites is assessed.
Navigable Waterways	D+	The U.S. Army Corps of Engineers has a backlog of \$38 billion in active authorized projects. On the inland waterways system, 44% of all the lock chambers have already exceeded their 50-year design lives. Key deep-draft channels are inadequate for the mega-container ships, which are the world standard for international trade; and intermodal connectors to ports are in poor condition. Transportation demand on waterways is expected to double by 2020, and serious performance problems are likely if current levels of investment continue.
Energy	D+	Since 1990, actual capacity has increased only about 7,000 megawatts (MW) per year, an annual shortfall of 30%. More than 10,000 MW of capacity will have to be added each year until 2008 to keep up with the 1.8% annual growth in demand. The U.S. energy transmission infrastructure relies on older technology, raising questions of long-term reliability.

America's Infrastructure G.P.A. = D+	A = Exceptional	Each category was evaluated
Total Investment Needs = \$ 1.3 Trillion	B = Good	on the basis of
(estimated 5-year need)	C = Fair	condition and
	D = Poor	performance,
	F = Inadequate	capacity vs.
		need, and
		funding vs.
		need.

American Society of Civil Engineers, 1015 15th street, NW, Suite 600, Washington, DC 20005;

For each of the infrastructure areas, the Civil Engineers assessed not only the quality of current performance, but also the cost of maintaining facilities at their present state and, crucially, the cost of bringing each area up to grade A performance. For 2001 conditions the Civil Engineers estimated the 5-year cost of that work at \$1.3 trillion. A further set of observations for 2003 conditions led the Civil Engineers to estimate the investment needs at \$1.6 trillion.

Consider also, adding two items to the Civil Engineer's list: repair of "worst case" housing and electrification of U.S. railroads. From the *American Housing Survey, 1998* we obtain the best available assessment of the number of dwelling units that were classified as "worst case" housing. An estimated cost for repairing severely depleted housing is \$369 billion. This is the fund required to upgrade to acceptable levels the housing for 5.32 million families.¹

The second recommended addition to the Civil Engineer's *Report Card for America's Infrastructure* is the electrification of the main line railroads of the United States. Continuous monitoring of this topic by Professor John E. Ullmann enabled him to estimate that the cost of electrifying and otherwise modernizing American railroads would require an outlay of \$250 billion.² This will give the U.S. a modern, hi-tech rail system that will deliver the sort of travel now available on the best Japanese and French railroads.

The combined investment cost of this infrastructure upgrading in the United States, including housing and rail electrification, will require an outlay of \$2.3 trillion over five years.

But how could all this be paid for? Two major sources of financing suggest themselves. First, reduction of overblown military budgets whose magnitudes are set for operating global hegemony campaigns. Renouncing military adventurism would free hundreds of billions each year for life-serving ends. A second prospective source is a reduction in the tax cuts that were engineered by the George W. Bush administration on behalf of the richest 5 percent of Americans. According to Citizens for Tax Justice between 2001 and 2010 these tax cuts will cost \$1.7 trillion in lost federal revenue. Taken together, these two sources could account for the lion's share of the \$2.3 trillion needed for U.S. infrastructure repair.

The Civil Engineers have performed an enormous service for the American people by applying their professional talents and judgments to produce a workable assessment of the cost of making a strategic set of improvements in the quality of life in the United States. At no point in their Report Card do the Civil Engineers suggest that they had depended on government funding to perform their assessment. Accordingly, the Report Card is a gift from America's oldest engineering society to the people of the United States. If this work were done, what would be the effects on employment and income in the U.S.?

In order to make a beginning in understanding of employment and income effects I invited the attention of Dr. Greg Bischak, Senior Economist at the *Appalachian Regional Commission*. I asked him to address the topic, "National Economic Effects Of A Shift In Federal Priorities" where the meaning of "shift" is defined by priority attention to renewal of infrastructure sectors that were critiqued by the American Society Of Civil Engineers. The full statement of Dr. Bishak's methods, analysis and statistical results in terms of possible employment and income are presented in Appendix A. As requested, he has focused on prospective employment and personal income. He gives particular attention to the employment consequences from a shift in federal priorities to that recommended by the civil engineers, with the addition of housing and rail electrification projects.

According to Dr. Bischak, if the recommendations of the Report Card are implemented then there is a prospect of generating from 2.7 to 4.7 million new jobs for Americans. These results are the calculable effects from sophisticated, economic-statistical methods that were applied to this problem. Thus the additional employment estimates include direct, indirect and induced effects of the investment impacts.³

Americans need a major “shot in the arm” of fresh, productive work to compensate for the ongoing, wholesale destruction of U.S. industries, employment and communities. There is no doubt that such a renewal requires a major revision of government’s policy and behavior. The U.S. drive for hegemonic power worldwide must be stopped and reversed. The river of funds and resources poured into the Pentagon for advancing its hegemonic power must be redirected to support life-serving production, for America.

STRATEGIC ROLE OF CAPITAL GOODS

A serious effort to repair and upgrade U.S. infrastructure will have a huge positive effect on the U.S. economy. Fixing the segments of infrastructure described in the *ASCE Report Card* will require the purchase of significant quantities of specialized machinery. For example: repairing bridges requires the use of particular kinds of cranes and power tools; fixing up roads requires specialized repaving equipment. Building all of this new machinery requires supplies of steel for raw material, machine tools for shaping the steel, and electricity to power the machine tools. A program to fix up infrastructure would quickly create a giant demand for all kinds of machinery, as well as for steel and electricity. For this reason, infrastructure renewal will create jobs outside the infrastructure sector itself, and have a large effect on the economy as a whole.

A part of this effect would be lost, however, if the main needed equipment and supplies were imported rather than produced domestically. For this reason, a vital part of a program of infrastructure renewal must be a wide-ranging effort to improve the productivity of capital & labor in U.S. capital goods production. For more on the feasibility of capital goods production in the U.S., see the comparison, (above) of characteristics and prices of “machining centers” built by Haas Automation (U.S. Based) and Mazak (Japan / Global Based).

Make no mistake, this is not advocacy of Autarchy-U.S.A. Rather, we can never be a good neighbor in relation to other nations and peoples, as long as the largest single quantity of our resources is directed for Pentagon use. If you entertain any doubt about the possible scale of effect from a new and constructive policy, you have only to examine once again the data measuring the destruction of production competence that are reported in Chapter 3. The plan to implement the infrastructure recommendations is a strategic plan to reverse this decay in production, employment and quality of our lives.

Please recall the first paragraph of this book. There is Mr. Rumsfeld, the Secretary of Defense, spelling out the fact that the Pentagon couldn’t pass the audit, couldn’t account for what it received in return for paying out \$2.3 trillion to various suppliers.

By contrast, here we propose spending \$2.3 trillion on a carefully drawn itemized list of expenditures in a national effort whose effects will change many qualities of American life from Grade D to Grade A. None of this is to say that the myriad details of such a vast effort can proceed without setbacks and defects. But it is not unreasonable to judge that the very effort to achieve the upgrading of American life will be worthwhile in its own right.

* * *

In the earlier chapters of this book I have shown that a permanent war economy, with its prospect of successive Vietnam-type wars is now a built-in feature of the political economy of the United States. In industry, the U.S. now has a very large and centrally controlled array of firms and laboratories that cater to the requirements of weapons production and military conquests.

Those firms, and their host of skilled blue- and white-collar workers and managers, have been trained to operate in a cost-maximizing fashion—as I outlined in Chapter One, above. Recall that the Pentagon-serving, cost-maximizing style prescribed “historical costing”, and guaranteed price escalation as the baseline for price setting. The rejected alternative was “engineering costing”, that required examination of feasible alternatives and a preference for least-cost methods.

The Pentagon’s policy prescription has had a mighty effect in rendering American firms technically and economically incompetent for civilian production. For example, when the city of New York invited bids for new operating equipment for its subway rail system, (of 6,000 cars) no U.S. firm even offered a bid on this multi-billion dollar project. We now learn that the New York Transit Authority is researching methods for computerized control of its subway system. “The project is being led by Siemens Transportation Systems Inc., the company that brought Paris the driverless Meteor Metro line, which opened in 1998.”⁴

The Governor of New York State presides over the New York Transit Authority that is now spending \$3-4 billion on purchasing new subway cars. If this manufacturing work were done by American companies, with factories in the U.S. – rather than by Kawasaki of Japan, Bombardier of Canada and Alstom of France – it would generate, directly and indirectly, about 32,000 man-years of work for Americans.⁵

But when the New York Transit Authority requested bids for the \$3 billion-plus contracts, not one U.S. based firm offered a bid. The absence of American firms from the largest subway-car manufacturing project in history sparked no response from the New York City or State governments. Most likely these officials did not realize that purchasing \$3 billion worth of subway cars from foreign manufacturers translates into a huge loss of jobs, capital investment and profits for the U.S. No attention was paid to America’s failure to compete.

An alternative scenario is possible. Imagine U.S. factories and a U.S. labor force set up to deliver 6 new subway cars each week, (ie: 300 per year). Such an operation would replace the 6,000 cars of the New York City Subway system over a twenty-year cycle. This model, as well as providing stable employment for a sizable workforce, would also allow the subway system to constantly phase in new developments in railcar technology. With the current mass purchasing of subway cars, New York City will be stuck with a full fleet of 2003 era subway cars through 2043. Furthermore, a stable production system for New York City could be geared up to produce cars for other U.S. cities’ subway systems as well.

However, establishing such a production system requires well-trained engineers to design the key subway transportation equipments. But it is almost 25 years since the last textbook was published in the United States on these topics: *Urban Public Transportation* by Vukan Vuchic (Prentice Hall, 1981). At this writing there is a lack of schools, teachers and books dealing with rail transportation. Suitable textbooks will have to be translated from French, German or Japanese. In the United States, the traditional depositories of knowledge for these subjects have been wiped out. There are no workplaces that prospective workers can visit to become acquainted with the shape of a productive career devoted to making subway cars. Unfortunately, what is true of the rail equipment industries also holds for so many industries that were shipped abroad during the second half of the twentieth century.

A great part of U.S. industry has been infected by the Pentagon's cost-maximizing style—rendering it unable to compete in civilian economy. If these firms and institutions are to ever efficiently produce life-serving goods, it will be necessary to carry out economic-technical and political transformations. On the economic-technical side this will require retraining the people working in military industry to be competent in civilian tasks.

The issues of retraining and reorganization were addressed during the 20th century by the *economic conversion movement*. Legislation was proposed in the Congress to promote highly decentralized retraining of blue and white-collar military industry workers. This legislation sought to ensure these workers' livelihoods outside the military enterprise and thereby negate one of the strongest elements of resistance to moving into a demilitarized economy. In the present day, similar retraining is required in order to execute the proposed renewal of U.S. infrastructure as outlined in Chapter 4.

We have available to us a considerable literature that was generated from 1980 to 2000, dealing with methods and requirements for economic conversion of industry and government from military to civilian competence. A selected list of books and articles on economic conversion has been collected for your use in Appendix D, below.

No American government since World War II has even considered converting from a military to civilian economy. Under the second Bush administration—with its accelerated warmaking operations*—the economic and human costs of the permanent war economy have become highly visible. However, the awful list of tragedies noted here is but a taste of what is to come if the U.S. government is allowed to continue consuming the lion's share of the public's resources in its drive for world hegemony.

HUMAN COSTS OF BUSH'S WAR ECONOMY

During President George W. Bush's first term in office, his administration has been degrading the quality of working life for average Americans.

- He attempted to roll back the 40-hour workweek and overtime pay protections. The proposed changes would strip 8 million workers of the right to overtime pay.⁶ Without these protections it is back to the 19th Century workweek.
- Bush has proposed a “guest worker” program that will make it easier for U.S. companies to import foreign workers and pay the “guest worker” a minimum wage of \$5.15 per hour. A flood of impoverished peasants would then disable efforts of U.S. unions to enforce a living wage.

* The Bush administration has been aggressively developing new and ever-more-costly weapons systems. Starting in 2004 the Bush anti-missile system will cost \$10 billion a year for the next five years and unknown hundreds of billions to install a full system – with components in Alaska, Japan, Australia, California, Colorado, Greenland and England. All this will ensure promising cash flows for Boeing, Bechtel and Raytheon. Never mind that “It's totally useless” and unlikely to “work against ICBMs from anyone who has it in for the United States”. That judgment from Dr. Richard L. Garwin, a physicist who has advised the government on security matters for 50 years. (New York Times, May 4, 2004.)

- Bush repealed OSHA (Occupational Safety and Health Administration) ergonomics standards that required adjustments to work stations if their use resulted in carpal tunnel syndrome, tendonitis or other repetitive motion injuries.⁷
- 3 million more Americans fell into poverty, increasing the total number to 34.6 million, or 12.1 percent of the population.⁸
- In 2001 the top fifth of U.S. households received 50.1 percent of the nation's income. In other words, in 2001, for the first time in U.S. history, the top fifth received more than the rest of the population combined.⁹
- In 2002, 12.5 percent of all people in the U.S. experienced "food insecurity". Some 3.4 percent experienced more severe hunger.¹⁰ During 2002 requests for emergency food assistance in U.S. cities doubled. About one in six of these food requests went unmet.¹¹
- Squandered the \$127 billion federal surplus and is now growing the deficit. – The projected deficit for 2004 is \$477 billion, and this is after surpluses from Social Security and the Post Office have been used to reduce it. The real "On-Budget" deficit is at least \$631 billion.¹² At this writing the President has called for an additional \$25 billion for the armed forces in Iraq.
- The League of Conservation voters have given Bush a grade of F.¹³ The following items show why:
 - Environmental Protection Agency Funding Cut by \$500 million in 2004 – Investments in water quality protection would be slashed by 32%.
 - The "Clear Skies" Initiative undercuts Clean Air restrictions on toxins such as mercury and nitrogen oxides, and increases sulfur emissions by as much as 50 percent. Increases in pollution allowed by "Clear Skies" will cause approximately 12,000 more premature deaths every year during 2008 to 2018.
 - Weakening the Clean Air Act allowed 17,000 power plants to use their dirtiest years from the past decade as the "baseline" against which pollution increases are measured.
 - In March 2001, Bush's EPA decided to delay implementing stricter regulations (proposed under Clinton) on the amount of arsenic allowed in drinking water. After public outcry, the stricter standard was implemented.

* * *

The evils documented above are only a foretaste of what is to come if the war economy is sustained. A fuller understanding is obtained by examining the experience of the Soviet Union, where the permanent war economy took a significant toll on the population and finally caused the collapse of Soviet government and economy. An incisive summary view of the economic costs in Soviet society is given in S. Melman, *After Capitalism*, Chapter 6, which

discusses the details of “The National Production Collapse” of the Soviet Union as a consequence of the military priority and overkill without limit. Of great importance was the resistance of top Soviet political and industrial managers to consider economic conversion planning. The terrible consequences of Soviet refusal to consider economic conversion can be seen in present day Russia.

THE SOVIET EXAMPLE: AN EARLY WARNING

Residents of the United States are in the fortunate position of having a measure of “early warning” of the environmental consequences of operating with large priority given to the war economy. That warning comes from news of the environmental disasters created by the Soviet Union’s military enterprise. A formidable account of these horrors is given by Dr. Ruben A. Mnatsakanian, Professor and Chair of the Environmental Science Department at Central European University.¹⁴ His book, *Environmental Legacy Of The Former Soviet Republics*, is a shattering portrait of environmental destruction.¹⁵

In the East Siberia Region of Russia there is a vast area that includes Lake Baikal, a treasure which is about 650 km long and has a maximum depth of 1,620 meters. Lake Baikal “contains 20 percent of all stored fresh water on earth”. A variety of industrial and urban pollution sources have contributed to the degradation of the lake, though the main culprit is a paper mill that was originally created to provide high quality cellulose for making jet fighter tires, (before synthetic processes were available). The region includes “Norilsk, the largest town north of the Polar Circle in the world, also an indisputable champion of air pollution in the USSR ... Norilsk region has enormous deposits of various ores – nickel, 33 percent of estimated world reserves, copper (42.5 %), platinum metals (around 90%) etc. The city and its plants and factories were built in permafrost in terrible conditions with hands of prisoners in Stalin’s times, (1940s-1950s) with immense loss of human lives ... a catastrophic situation with water [and] air pollution is in the Norilsk region ... forest degradation due to industrial pollution on a scale unprecedented even in the USSR (and, probably, in the world) is taking place around Norilsk ...”¹⁶

The extent of environmental destruction in Russia is also illuminated by a recent paper by Rashid Alimov writing for *The Environmental Foundation Bellona*. One paper titled “Radioactive Waste Threatens Moscow” describes current efforts to clean up the “several dozen radioactive waste sites ... scattered within Moscow’s borders.” In many cases these waste sites were created outside the city limits during the 1940s and 1960s. Later on, the city boundaries were expanded and these waste sites were engulfed in the process, many of them becoming sites for expanding city housing.¹⁷ Another report details the Nuclear Reactors Institute’s plans to dump radioactive waste two kilometers from the city of Dimitrovgrad’s water wells.¹⁸ On August 10, 2004 *The New York Times* reported on the legacy of Soviet nuclear industry that was left to contaminate Moscow’s expanding housing areas. “The program of creating the nuclear bomb, the atom bomb, started in Moscow.” By 2004 the Russian Radon agency was left to locate and retrieve more than 1200 “orphaned sources” of radiation-emitting waste from the array of institutes and factories that had been part of the Soviet nuclear industry. As Moscow grew, its outskirts were “sending down roots into illicit radioactive dumps... Eventually housing and offices were started in these areas.”

MOVING TOWARD A PRODUCTIVE ECONOMY: AN ASSEMBLY FOR REINDUSTRIALIZATION OF THE U.S.

The reindustrialization of the United States, making use of infrastructure rebuilding as a cutting edge, is a prospect that is within reach if Americans decide to put aside the world hegemony ambitions of America's state capitalist managers.

How could we encourage and facilitate a reindustrialization process? The following actions would trigger further necessary steps.

Starting with the Civil Engineers' estimates of required investments in each infrastructure function, let us convene an Assembly of: engineers from the whole spectrum of technical societies; trade union officers; industrial economists; and education specialists. This Assembly should produce a first assessment of the resources required for fleshing out the Civil Engineer's 2003 estimates and indicators of early steps that can be taken to marshal essential people across the U.S. for this project. At the same time this early Assembly could commission an assessment of the shortfalls in occupations that are required for the reindustrialization process.

Further definitions of next steps with national, regional, and local assemblies can follow from the initial efforts to assess needs, available and required resources. [Editor's note: The aftermath of Hurricane Katrina in 2005 has spurred many efforts, both to assess the dismal state of American infrastructure and to call for widespread reconstruction.] At this writing there is no need for attempting detailed definition of further steps which would best grow out of the conclusions from the first Reindustrialization meeting – as defined here.

A many-sided effort to reindustrialize the U.S. can proceed with the confidence that an accumulation of productive successes will open up new prospects for our working lives. Instead of producing dead-end materials and machines on Pentagon order, we can create a flow of useful, life-serving goods. The very efforts to achieve such results will transform the lives of all of us who participate.

¹ U.S. Department of Housing and Urban Development, *American Housing Survey*, 1998, Washington, D.C. ; AFL-CIO Housing Investment Trust, *Annual Reports*, 1993-1996, Washington, D.C.; *New York Times*, Apr. 28, 1998; For Method that produced \$369 billion estimated cost for severely depleted U.S. housing, see Seymour Melman, *After Capitalism* (Alfred A. Knopf, 2001) p. 150.

² John E. Ullmann, "Rail Passenger Woes: 'No Policy' As Policy", *Journal of Transportation Law, Logistics and Policy*, Summer 2003, V. 70 #4. pp. 442-459.

³ It is not my purpose to argue the preference among the four simulations whose results Dr. Bischak has presented. I do see it as my responsibility to call attention to the maximum possible job gain that can calculably result from implementing the Civil Engineers' program. I believe that this largest employment addition should be debated in terms of the alternative scenarios that Bischak has presented. There is no magic wand or single universally desirable alternative among the possibilities he has sketched out.

⁴ *New York Times*, June 23, 2004.

⁵ *Special Calculation* by Dr. Greg Bischak, Senior Economist, Appalachian Regional Commission.

⁶ Economic Policy Institute, "Overtime Rights in Peril": www.epinet.org/content.cfm/overtime_2003.

⁷ "Bush signs repeal of workplace safety rules", *USA Today*, Mar. 21, 2001.

⁸ Center For Budget and Policy Priorities, "Poverty Increases And Median Income Declines For Second Consecutive Year", Sept. 29, 2003: www.cbpp.org/9-26-03pov.htm; and U.S. Census, *Poverty in the United States: 2002*, Sept., 2003.

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- ⁹ U.S. Census, *Historical Income Tables – Households*, Sept. 2002, Table H-2:
www.census.gov/hhes/income/histinc/h02.html
- ¹⁰ U.S. Department of Agriculture, *Household Food Security in the United States, 2002*, October 2003, Table 1, p 7.
- ¹¹ U.S. Conference of Mayors, *A Status Report on Hunger and Homelessness in America's Cities, 2002*
- ¹² Congressional Budget Office, "The Budget and Economic Outlook: Fiscal Years 2005 to 2014", Jan. 2004, Summary Table 1, p. xii.
- ¹³ League of Conservation Voters, "2003 Presidential Report Card", Jan. 2003: www.lcv.org.
- ¹⁴ Dr. Mnatsakanian is also author of "Nature Protection in Russia, From Gorbachev to Putin" (440 p., in Russian)
Full text download available at: www.wwf.ru/resources/publ/book/73/
- ¹⁵ Dr. Ruben A. Mnatsakanian, *Environmental Legacy Of The Former Soviet Republics*, (Centre for Human Ecology, Edinburgh: Scotland, 1992) .
- ¹⁶ Ibid., pp. 175-182.
- ¹⁷ Rashid Alimov, "Radioactive Waste Threatens Moscow", *Bellona*, June 18, 2003:
www.bellona.no/en/international/russia/waste-mngment/30049.html
- ¹⁸ Rashid Alimov, "Radioactive waste to be dumped near Dimitrovgrad's water wells", *Bellona*, Nov. 6, 2002:
www.bellona.no/en/international/russia/waste-mngment/27015.html

APPENDIX A

National Employment and Income Effects From a Shift in Federal Priorities

by Greg Bischak, Ph D.

Unmet national infrastructure needs have been detailed by the American Society of Civil Engineers (ASCE) in a September 2003 report. This assessment outlines the ASCE's estimate of the projected five-year deficits in America's public infrastructure investments in highways, bridges, transit, schools, aviation, drinking water and waste water infrastructure, solid waste, hazardous waste, waterways and the electrical transmission grid.¹

Current baseline funding in the federal budget² was deducted from each one of the ASCE estimates to determine a net annual estimate of additional funding required over the 2005 – 2009 period. This exercise resulted in a projected annual average estimate of \$269 billion required to meet these infrastructure needs over this period (which averaged \$222 billion when expressed in fixed 1996 dollars).

Four methods were used to estimate the economic and employment impacts of such a hypothetical five-year civilian investment program. All simulations were performed using a dynamic national economic model of the economy.³ The employment estimates generated by this model represent the additional employment over the existing forecast and include the direct, indirect and induced effects of these investment impacts. The estimated changes in Gross Domestic Product and Personal Income represent the effects on final demand in the economy from this additional investment.

First, a simulation was performed using a hypothetical shift in federal spending from the military to the civilian budget so that no new fiscal burden would be imposed on the domestic economy. This method simulated cuts by nearly half of projected annual military spending for the 2005 to 2009 period, and the investment of the savings into the infrastructure program detailed above.

Second, a shift identical to the first method was modeled, but monetary market adjustments were introduced mid way through the five-year period to reflect the upward pressure on interest rates from additional public borrowing.

Third, a simulation was performed of the impacts of funding the infrastructure investment program through additional public investment without a compensating shift of funding from the military to civilian federal budget. These impacts were modeled without introducing any monetary market adjustment.

Fourth, a simulation was performed of the impacts of funding the infrastructure investment program by injecting additional funds into the economy without a compensating shift of funding from the military to civilian federal budget. However, under this scenario a monetary market adjustment was introduced mid way through the five-year period to reflect the upward pressure on interest rates from additional public borrowing.

The results of these four simulations are presented in the table below.

It is noteworthy that simply shifting federal spending from the military to fund the civilian infrastructure program generates net job creation—even though no new public funds are injected into the national economy. Annual average job impacts of such a shift in federal priorities range from 988,000 jobs (assuming no monetary adjustment), to 593,000 jobs (with monetary adjustment). A hypothetical injection of additional spending into the national economy to fund the public infrastructure program (without a compensating shift of federal spending from military to civilian priorities) generates job estimates that range from a high of 4.7 million jobs to nearly 2.7 million once some monetary adjustment is introduced.

Several factors account for the increase in economic activity under the shifting priorities scenarios. First, civilian infrastructure programs generally purchase a greater share of domestically produced goods and services. Second, the sectors stimulated by civilian infrastructure spending are relatively less capital-intensive than military spending. Third, a significant share of military spending goes to troops stationed overseas and to support logistics operations overseas, with a large proportion of the spending leaking out to overseas consumption, suppliers and businesses. Finally, it is important to note that all of these estimates only reflect the short-term impacts of these changes, and do not measure the long-term productivity benefits that would occur from these civilian infrastructure investments.

Results of Four Simulations of Hypothetical Federal Spending Scenarios 2005-2009

	2005	2006	2007	2008	2009	5-yr average
Additional Employment (Thousands)	1,375	1,119	943	808	697	988
Gross Domestic Product (Billions of Fixed 96\$)	62	49	41	35	30	44
Personal Income (Billions of Nominal \$s)	130	137	141	143	144	139
	2005	2006	2007	2008	2009	5-yr average
Additional Employment (Thousands)	1,375	1,119	472	0	0	593
Gross Domestic Product (Billions of Fixed 96\$)	62	49	6	-28	-27	13
Personal Income (Billions of Nominal \$s)	130	137	111	89	93	112
	2005	2006	2007	2008	2009	5-yr average
Additional Employment (Thousands)	5,951	5,069	4,531	4,143	3,836	4,706
Gross Domestic Product (Billions of Fixed 96\$)	376	329	301	281	266	311
Personal Income	409	420	422	424	424	420

(Billions of Nominal \$s)						
	2005	2006	2007	2008	2009	5-yr average
Additional Employment (Thousands)	5,951	5,069	2,266	0	0	2,657
Gross Domestic Product (Billions of Fixed 96\$)	360	314	126	-38	-45	143
Personal Income (Billions of Nominal \$s)	376	329	132	-40	-48	150

DR. GREG BISCHAK

Greg Bischak is a Senior Economist for the Appalachian Regional Commission (ARC). He conducts and directs research on the various aspects of the economic development needs and programs of the thirteen state Appalachian region.

Dr. Bischak received his doctorate from the New School for Social Research in New York City in 1988. He is a member of the Transportation Research Board of the National Academy of Science, and serves on the Transportation and Development Committee. His areas of expertise are regional economics, input-output analysis, industrial organization and transportation and energy economics.

Dr. Bischak's publications include "Issues for Examining the Economic Development Impacts Using a Fully Networked Model of the Appalachian Development Highway System Progress" Transportation Research Board, May 2002; "Challenges in Reducing Economic Distress in Appalachia, An Analysis of National and Regional Trends Since 1960; *US Conversion after the Cold War, 1990-1997: Lessons for Forging a New Conversion Policy*, July, 1997, Bonn International Center for Conversion, Bonn, Germany. A more complete bio of Dr. Bischak can be found at: <http://faculty.fuqua.duke.edu/ciber/nftp/bischak.htm>

APPENDIX B

The American Society of Civil Engineers' 2003 Progress Report

In March 2001, ASCE released a Report Card for America's Infrastructure, grading 12 infrastructure categories at a discouraging D+ overall and estimating the need for a \$1.3 trillion investment to bring conditions to acceptable levels. In Sept. 2003, ASCE released a Progress Report that examines the current trends for addressing the nation's deteriorating infrastructure and discusses actions the federal government should take to bring conditions up to acceptable levels. ASCE did not issue new grades because the condition and performance have not changed significantly in two years.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Roads & Bridges	D+/C	↓/↔

The nation is failing to even maintain the substandard conditions we currently have, a dangerous trend that is affecting highway safety, as well as the health of the economy. According to the Federal Highway Administration's (FHWA) "2003 Conditions and Performance Report," traffic congestion costs the economy \$67.5 billion annually in lost productivity and wasted fuel. Passenger and commercial travel on our highways continues to increase dramatically. The average rush hour grew more than 18 minutes between 1997 and 2000. The American Association of State Highway and Transportation Officials' (AASHTO) "Bottom Line Report" estimates that capital outlays by all levels of government would have to increase by 42% to reach the projected \$92 billion Cost to Maintain level, and by 94% to reach the \$125.6 billion Cost to Improve level. This is in contrast to the FHWA which estimates that outlays by all levels of government would have to increase by 17.5% to reach their projected \$75.9 billion Cost to Maintain level, and 65.3% to reach their \$106.9 billion Cost to Improve level.

As of 2000, 27.5% of the nation's bridges (162,000) were structurally deficient or functionally obsolete, an improvement from 29% in 1998. A structurally deficient bridge is closed or restricted to light vehicles because of its deteriorated structural components, which require speed and weight restrictions. A functionally obsolete bridge has older design features and while it is not unsafe for all vehicles, it cannot safely accommodate current traffic volumes, vehicle sizes and weights. These restrictions not only contribute to traffic congestion, they also pose major inconveniences such as in Warren, Pa., where the local hospital has stationed an ambulance crew on the other side of town to avoid a time-consuming three-mile detour around the Hickory Street Bridge while the town awaits construction of a new \$10-million span. It is estimated that it will cost \$9.4 billion a year for 20 years to eliminate all bridge deficiencies. Present funding trends of state DOTs call into question future progress on addressing bridge deficiencies.

While the enactment of the Transportation Equity Act of the 21st Century (TEA-21), which authorized \$218 billion for the nation's highway and transit programs in 2001, has helped, America continues to shortchange funding for much needed road and bridge repairs.

FEDERAL ACTION NEEDED: On Sept. 30, 2003, TEA-21 expires, along with funding to state highway and transit programs. Congress and the Administration must act to reauthorize this important legislation with sufficient funding to address the significant needs identified for America's surface transportation systems. The House Transportation and Infrastructure Committee's draft TEA-21 proposal provides \$375 billion over 6 years for the

nation's surface transportation program – the amount identified as the Cost to Maintain by the FHWA in the 2002 Conditions and Performance Report.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Transit	C-	↓

Despite increased spending resulting from TEA-21, our transit systems show signs of decline. Efforts to maintain the systems are outpaced by growth in ridership, which has increased faster than airline or highway transportation. According to the American Public Transit Association, public transportation ridership has increased 22% since 1998 – the highest level in 40 years.

Roads and transit systems are in peril. Funding at the federal, state and local levels is in danger of drying up and citizens are failing to invest in their communities' futures. In Virginia, where vehicle travel has increased by 21% from 1991 to 2001 and its population grew by 16% between 1990 and 2001, voters in Northern Virginia and Hampton Roads, Va., failed to pass a sales tax proposal last fall that would have raised billions for its overburdened road and transit system. On the positive side, in Las Vegas, where freeway congestion has grown from 5% to 55% in the past 20 years, voters approved a tax plan to fund local transportation projects.

The federal government invests \$7.66 billion annually in mass transit capital improvements. According to AASHTO, capital outlays by all governments would have to double to reach the projected \$18.9 billion Cost to Maintain level, and increase by 362% to reach the \$43.9 billion Cost to Improve level. The Federal Transit Administration estimates the Cost to Maintain at \$14.8 billion and the Cost to Improve at \$20.6 billion.

FEDERAL ACTION NEEDED: On Sept. 30, 2003, TEA-21 expires, along with funding to the nation's surface transportation programs. Congress and the Administration must act to reauthorize this important legislation with sufficient funding to address the significant needs identified for America's surface transportation systems.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Aviation	D	↔

Despite economic and post 9/11 related decline in passenger travel, the FAA expects dramatic growth in aviation demand over the next decade. Total U.S. enplanements in 2001 were 683 million and are expected to reach 1 billion by 2014. Air cargo is expected to grow by 5.3% a year for the next 12 years. The FAA states that a minimum of an additional \$2 billion a year is necessary to meet needs.

When aviation infrastructure was graded a D in 2001, airport capacity had increased only 1% from 1991 to 2001, yet air traffic had increased 35% during that same period. Despite the current lows in passenger travel, the continued resurgence in passenger and cargo air travel to previous levels, combined with current airport spending trends, translates into a "No Progress" arrow for our nation's aviation infrastructure. Little is being done to capitalize on the low growth period after 9/11 to address the nation's aviation infrastructure needs.

Officials are choosing to invest funds in strengthening airline security measures instead of infrastructure. Los Angeles Mayor James K. Hahn's recently proposed a \$9 billion plan for

Los Angeles International Airport would enhance security, in part by decreasing the number of gates from 163 to 153, but allows for no significant airfield capacity increases.

FEDERAL ACTION NEEDED: On Sept. 30, 2003, AIR-21 expires, along with funding for programs such as the Airport Improvement Program (AIP). Both the House and Senate have passed versions of the Second Century of Flight Act (H.R. 2271 & S. 788); however, Congress and the Administration must work out their differences to allow President Bush to sign into law an airport bill.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Schools	D-	↔

Due to either aging, outdated facilities, severe overcrowding, or new mandated class sizes, 75% of our nation's school buildings remain inadequate to meet the needs of school children. The average cost of capital investment needed is \$3,800 per student, more than half the average cost to educate a student for one year. Population growth is outpacing investment in our schools. While school construction spending has increased, the cost to remedy the situation remains more than \$127 billion.

Many school districts are mandating a lower student to teacher ratio in an effort to improve test scores. In Florida, there is now a statewide constitutional amendment limiting class sizes causing the Hillsborough County school district to put a freeze on moving dilapidated portable classrooms from school property.

There has been no new comprehensive needs assessment since the last report card. The increased attention on K-12, along with increased funding, has highlighted the issue, but the underlying problems remain.

FEDERAL ACTION NEEDED: Funding for schools is a state and local function. However, federal educational standards and mandates on classroom size do have costs. The federal government should do more to assist local school districts in maintaining their facilities. One way would be to enact the America's Better Classroom Act of 2003 (H.R. 930 & S. 856), which would help states and localities by using tax credits to pay the interest on school modernization bonds. It is a sensible, cost-effective and efficient measure that creates no new bureaucracy

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Drinking Water	D	↓

While drinking water quality remains good, the infrastructure of the nation's 54,000 drinking water systems is aging rapidly. Federal funding remains flat, while the infrastructure needs continue to increase. There is an annual shortfall of \$11 billion needed to replace or rehabilitate facilities that are nearing the end of their useful life and to comply with federal water regulations.

The forecast for our nation's drinking water systems indicates a downward slope. Drinking water received a D on the 2001 Report Card, yet the situation continues to worsen as aging systems – some developed more than a century ago – continue to service our ever-growing population.

FEDERAL ACTION NEEDED: Reauthorization of the Safe Drinking Water Act at \$25 billion over a five-year period would go a long way toward improving our nation's water infrastructure.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Wastewater	D	↓

The nation's 16,000 wastewater systems face enormous needs. Some sewer systems are 100 years old and many treatment facilities are past their recommended life expectancy. Currently, there is a \$12 billion annual shortfall in funding for infrastructure needs; however, federal funding has remained flat for a decade. Because of this continuing shortfall, more than 1/3 of U.S. surface waters do not meet water quality standards.

America's farmers, fishermen, manufacturers and tourism industries rely on clean water to carry out activities that contribute over \$300 billion to our economy each year. However, the challenge to continue providing clean water remains, as our existing national wastewater infrastructure is aging, deteriorating and in need of repair, replacement and upgrading. In fact, EPA has reported that without improvements to the nation's wastewater treatment infrastructure, we face the very real risk of losing the environmental gains we have achieved over the last three decades since the passage of the Clean Water Act of 1972.

FEDERAL ACTION NEEDED: Reauthorization of the Clean Water Act at \$25 billion over a five-year period would begin to improve our nation's wastewater infrastructure. Congress should pass H.R. 1560, the Water Quality Financing Act of 2003, or S. 170, the Clean Water Infrastructure Financing Act of 2003, at the recommended funding level.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Dams	D	↓

The number of unsafe dams has risen by 23% to nearly 2,600. Because of downstream development, the number of "high-hazard potential dams" – those whose failure would cause loss of life – has increased from 9,921 in 2001 to 10,049 in 2003. There have been 21 dam failures in the past two years.

Some progress is being made through the repair of small watershed dams constructed with assistance from the USDA since 1948. This is only a small portion of the total number of non-federal dams. On the federal side, the federally-owned dams are in good condition; however, continuing budget restrictions are placing pressure on and limiting many agency dam safety programs.

Despite the recent passage of the National Dam Safety and Security Act of 2002 (HR 4727), which provides funding through grants to improve state dam safety programs, it is estimated that \$10.1 billion is needed over the next 12 years to address all critical non-federal dams – dams that pose a direct risk to human life should they fail. In the meantime, the 78,000 dams in the U.S. National Inventory of Dams continue to age and deteriorate.

FEDERAL ACTION NEEDED: Introduction and passage of legislation to create a loan fund for the repair, rehabilitation and removal of non-federal dams would provide seed money to advance the process of rehabilitating the most critical dams.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Solid Waste	C+	↔

The amount of solid waste sent to landfills has declined 13% since 1990, while the amount of waste recovered through recycling has nearly doubled and waste-to-energy plants manage now 17% of the nation's trash. Most states have 10 years' worth of landfill capacity.

Solid waste disposal received a C+, the highest grade on the 2001 Report Card for America's Infrastructure. In the two years since, solid waste is holding steady with average performance. Sanitary land filling in the United States has made monumental strides in the last 20 years, moving from open dumps with little or no control to "state of the art" facilities with sophisticated containment systems, environmental monitoring, improved operational practices and increased regulation. The amount of solid waste sent to landfills has declined by 13%, while the amount of waste recovered through recycling has nearly doubled, an option that many municipalities, including the city of New York, have found to be cost effective.

However, despite the progress with traditional solid waste concerns, the rapid development of new technology has created an electronic waste stream (computer hardware and other electronic components) that, according to the U.S. Environmental Protection Agency (EPA), currently accounts for 1% of the nation's 210 million tons of solid waste each year and is growing rapidly. Because of a lack of an efficient, U.S.-based management system for this new waste category, much of our nation's electronic waste is being stockpiled or sent overseas for disposal.

FEDERAL ACTION NEEDED: An efficient management system based in the United States is needed to handle the growing volume of electronic waste (e-waste). Congress should authorize regional e-waste management compacts to assist states in managing this emerging solid waste concern.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Hazardous Waste	D+	↔

Since 2001, brownfields redevelopment has increased, with the restoration of 922 sites resulting in increased tax revenue and jobs. The rate of Superfund site clean-up has quickened. Unfortunately, in both arenas, the clean-up rate is not able to keep up with the rate at which new sites are identified and the backlog of potential sites is assessed.

According to a June 2003 report from the U.S. Conference of Mayors, 205 cities have 24,987 brownfield sites awaiting redevelopment. Of those, 148 cities reported that 576,373 new jobs and as much as \$1.9 billion annually could be generated if their brownfield sites were redeveloped. The Government Accounting Office (GAO) estimates that there are 400,000 to 600,000 brownfield sites nationwide.

Nearly 10,000 contaminated sites could end up in the Superfund program. Nearly 800 high-priority hazardous-waste sites were fully cleaned up between 1980 and 2000. However, more than 1,200 sites remain to be addressed and another 3,000 sites still need to be assessed for possible action under Superfund. The Superfund program could encompass as many as 10,000 contaminated sites. The U.S. GAO estimates that, after nearly 20 years and outlays of more than \$14 billion, the Superfund program has yet to complete clean-ups for 42% of the nation's most severely contaminated hazardous waste sites. Cleanups at 85% of these sites

will be completed by the end of calendar year 2008. The remainder will not be completed until well after 2008.

FEDERAL ACTION NEEDED: The Bush administration has asked Congress to add \$150 million to next year's Superfund program budget, which averages \$3 billion a year. Yet with so many brownfields waiting to be decontaminated and rehabilitated, prime economic opportunities continue to languish. Congress should enact H.R. 239, the Brownfields Redevelopment Enhancement Act; H.R. 402, the Brownfield Cleanup Enhancement Act of 2003; H.R. 2535, the Economic Development Administration Reauthorization Act of 2003; and S. 645, the Brownfields Redevelopment Assistance Act of 2003.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Navigable Waterways	D+	

As the world's leading maritime and trading nation, the United States relies on an efficient and effective marine transport system to maintain its role as a global economic superpower. The waterway system is also vital to U.S. national security interests. The nation's 25,000 miles of waterways, 238 lock chambers and 1,000 harbor channels serve 300 U.S. ports and over 3,700 terminals by moving 2.4 billion tons of commerce annually, and by providing critical intermodal links to 152,000 miles of rail; 460,000 miles of pipelines; and 45,000 miles of interstate highways. Despite the significance of the waterway link to the global economy, national investment in water resources projects has not kept pace with U.S. economic and social expansion, resulting in the nation's waterway infrastructure being in urgent need of modernization to accommodate present and future levels of waterborne traffic.

Half of the navigation locks on inland waterways exceed their 50-year design life. System capacity has been impacted by deferred maintenance, which has led to a doubling of out-of-service times at navigation locks over the last 10 years. Funding shortfalls have delayed completion of many ongoing capital improvement projects by 5 to 10 years, resulting in construction cost increases of \$300 million and lost benefits of over \$2 billion. The unexpended balance in the Inland Waterway Trust Fund has grown to \$360 million.

Additionally, key deep-draft channels at the nation's gateway ports are inadequate for the mega-container ships, which are the world standard for international trade, and intermodal connectors to ports are in poor condition. Transportation demand through navigation channels, especially for vessels carrying containerized cargoes, is expected to more than double by the year 2020. Maintaining authorized levels of service at harbor channels is challenged by a growing maintenance funding backlog, with the unexpended balance in the Harbor Maintenance Trust Fund now at \$1.73 billion.

Over the last 30 years the U.S. population has increased more than 40% while the GDP has grown from \$2.5 to \$10.8 trillion. Meanwhile, capital investment in public water resources infrastructure has decreased by 70%. For example, in the 1970s the U.S. Army Corps of Engineers' civil works construction appropriations were in the \$4 billion range. However, in the 1990s the funding dropped to an average of \$1.6 billion a year. The combination of declining investment, coupled with an expanding population and economy, has created an "investment gap."

FEDERAL ACTION NEEDED: A bi-annual water resources authorization act was not enacted in 2002, postponing needed environmental and business process improvements for waterway programs. It is imperative that Congress and the Administration pass the Water Resources Development Act of 2003 (H.R. 2557) to address these future needs. In addition,

the investment gap needs to be addressed through aggressive modernization and maintenance programs, including spending down the trust fund balances for the purposes the monies were intended.

<i>Subject</i>	<i>Grade</i>	<i>Trends</i>
Energy	D+	↓

Over the last two decades, transmission investment has decreased by \$115 million a year, dropping from \$5 billion annually in 1975 to \$2 billion in 2000. The electric transmission line grid capacity has not been upgraded to meet growth demands.

In August 2003, millions of Americans and Canadians were left without electricity. Two years after the nation's energy infrastructure received a D+, the nation experienced an electrical system failure that not only left tens of millions in the dark, but also brought other infrastructure areas to a halt. Transit in New York City was stopped in its tracks leaving millions stranded and access to drinking water in Cleveland was interrupted.

Since 1990, actual capacity has increased by only about 7,000 megawatts (MW) per year, an annual shortfall of 30%. More than 10,000 MW of capacity will have to be added each year until 2008 to keep up with the 1.8% annual growth in demand. The U.S. energy transmission infrastructure relies on older technology, raising questions of long-term reliability.

Proposals to build more generators and adding transmission lines are often met with serious obstacles, including voter opposition. The Department of Energy estimates that consumers will pay up to \$50 billion in higher electric bills to modernize the U.S. power grid. Still, government has been slow to adopt regulations to improve transmission capacity.

FEDERAL ACTION NEEDED: Investments in the transmission grid have diminished significantly in recent years. Investment barriers include lack of regional integrated planning, difficulty in siting new transmission lines, and uncertainty regarding investment risks and returns. The Federal Energy Regulatory Commission (FERC) has called for the development of five Regional Transmission Organizations (RTOs). These RTOs, when implemented, will be used to better determine weaknesses in the transmission grid and allow better regional planning. The RTOs will ultimately be responsible for the efficient managed growth of the regional transmission system.

Bottom Line — All Categories	2001 GPA
Total Investment Needs: \$1.6 Trillion (estimated 5-year need)	D+

	Trends	
A= Exceptional	↑ = Improving	Each category was evaluated on the basis of condition and performance, capacity vs. need, and funding vs. need. Assessments do not include security enhancements as no authoritative data is available
B = Good	↔ = No Progress	
C = Mediocre	↓ = Declining	
D = Poor		
F = Inadequate		

Each category was evaluated on the basis of condition and performance, capacity vs. need, and funding vs. need. Assessments do not include security enhancements as no authoritative data is available.

In 2001, the estimated cost for infrastructure renewal was \$1.3 trillion over a five-year period. Today, that cost has risen to \$1.6 trillion over a five-year period. While solutions to repair our crumbling infrastructure can be addressed through a renewed partnership between citizens, the private sector, and local, state and federal governments, reauthorization of TEA-21, and passage of the Clean Water Act and the Safe Drinking Water Act can provide critical funding to repair our transportation, water and dam infrastructure.

The trends for renewal of the 12 infrastructure areas were assessed by a panel comprised of 20 eminent civil engineers representing the broad spectrum of civil engineering. The forecasted trends were based on the condition and performance of each infrastructure area as reported by federal sources; capacity of infrastructure versus need; and current and pending investment of state, local and federal funding for infrastructure versus need.

APPENDIX C

Selected Excerpts From the Section 301 Petition

From the American Federation of Labor and Congress of Industrial Organizations, (AFL-CIO) Before the Office of the United States Trade Representative, March 2004, From John J. Sweeney (President, AFL-CIO) and Richard L. Trumka (Secretary-Treasurer, AFL-CIO), with Counsel: Mark Barenberg, Professor of Law, Columbia University, 435 W 116th St., New York, NY 10027. This petition requests that action be taken under Section 301 of the Trade Act of 1974, as amended.*

* * *

SECTION 301 PETITION

I. INTRODUCTION AND SUMMARY

Each year, millions of Chinese citizens travel from impoverished inland villages to take their first industrial jobs in China's export factories. Young and mostly female, they are sent by their parents in search of wages to supplement their families' income. They join an enormous submerged caste of temporary factory workers who are stripped of civil and political rights by China's system of internal passport controls.

They enter the factory system, and often step into a nightmare of twelve-hour to eighteen-hour work days with no day of rest, earning meager wages that may be withheld or unpaid altogether. The factories are sweltering, dusty, and damp. Workers are fully exposed to chemical toxins and hazardous machines, and suffer sickness, disfiguration, and death at the highest rates in world history. They live in cramped cement-block dormitories, up to twenty to a room, without privacy. They face militaristic regimentation, surveillance, and physical abuse by supervisors during their long day of work and by private police forces during their short night of recuperation in the dormitories.

They can do little to relieve their misery. Their movements are controlled by the Public Security forces, who ruthlessly enforce the pass system. They are not permitted to seek better-paying jobs reserved for privileged urban residents. If they assert their rights, they are sent back to the countryside, or worse. Attempts to organize unions or to strike are met with summary detention, long-term imprisonment, and torture. Enmeshed in bonded labor, they frequently cannot even leave their factory jobs, no matter how abusive. They have minimal access to China's legal system, which, in any event, is corrupted by the local Party officials who extract personal wealth from factory revenue. Their impotence is reflected in their desperate acts of violence and their shocking rate of suicides intended merely to draw attention to their plight. China's unremitting repression of labor rights robs China's workers of wages, health, and dignity.

By lowering wages by between 47 and 85 percent, China's labor repression also diverts millions of manufacturing jobs from countries where labor rights are not so comprehensively denied, increasing unemployment and poverty among workers in developed and developing countries. Highly conservative methodologies show that China's labor repression displaces approximately 727,000 manufacturing jobs in the United States alone, and perhaps many more.

* The full text of the petition is available at:

www.aflcio.org/issuespolitics/globaleconomy/upload/china_petition.pdf

China's current level of investment in new factories is unprecedented and will deliver an even greater supply shock to global industry in the next five years, producing even greater losses in U.S. manufacturing jobs -- unless the President takes decisive action. Developing countries such as Bangladesh and Indonesia will each lose up to one million manufacturing jobs to China, and Central American and the Caribbean will lose up to one half million jobs, in the textile and apparel sector alone. Workers in all countries have a common interest in safeguarding the human rights of China's factory workers.

This petition is not targeted against "free trade" or against China's "comparative advantage" in global markets. Rather, this petition challenges the *artificial* and *severe* reduction of China's labor costs below the baseline of comparative advantage defined by standard trade theory. China reduces labor costs by a system of government-engineered labor exploitation on a scale that is unmatched in the present global economy. As this petition details, China's comprehensive regimentation of its young migrant factory workers has some elements that are similar to the control of black workers in apartheid-era South Africa. Both systems use internal pass controls that prevent workers from moving their permanent residence from impoverished villages to factory towns and cities. Both systems subject temporary migrant workers to extreme deprivation of their workplace rights. Both systems turn ordinary workers into highly exploitable outcasts in their own country...

p. 6

... Like the discredited laissez-faire regimes of the nineteenth century, today's global rules protect rights of property, contract, and capital but not fundamental rights of personhood, community, and labor. Section 301(d) embodies an alternative model, in which human and social rights are the necessary precondition to democratic and equitable development. Consistent with that model, section 301(b) authorizes the President not only to take trade action to improve China's immediate labor-rights practices. It also authorizes him to take any action within his foreign-affairs power to change the rules of trade and finance that encourage China's violations. ...

p. 10

... Petitions under sections 301 and 302 are typically filed by U.S. corporations seeking to protect their commercial interests against unfair trade practices by foreign governments. Those unfair trade practices include barriers to imports from the U.S., subsidies of exports to the U.S., failure to enforce the intellectual property rights of U.S. companies, and many others.

The workers' rights provisions of section 301 are distinctive in several ways. First, unlike other unfair trade practices enumerated in section 301, the workers' rights provisions are aimed at safeguarding fundamental human rights. That aim cannot be dismissed as "protectionist". The goal of those provisions, and of this petition, is not to deny jobs and economic advancement to China's workers. To the contrary. The goal is to use the enormous economic leverage of the United States to induce positive change in China - to achieve respect for the basic rights of China's factory workers. When China safeguards basic workers' rights, it will enjoy access to the U.S. market *and* create jobs that are not an affront to human dignity. ...

p. 13

... There are more than 750 million workers in China -- more than the workforce of all OECD countries combined. China's 2002 census showed approximately 160 million in

manufacturing and mining, nearly 12 times the manufacturing workforce in the United States. China's manufacturing workers are employed in several different types of enterprises - privately invested enterprises (PIEs), joint-ventures, foreign-invested enterprises (FIEs), urban collectives and cooperatives, township and village enterprises (TVEs), and state-owned enterprises (SOEs).

To the extent that the Western media and public have any knowledge of these enterprises, they may be most familiar with images of large showcase factories owned by Western multinational corporations that have come under pressure from consumer and labor activists. But the vast majority of export workers labor in other facilities, out of public view, producing either directly for export or as subcontractors for larger export enterprises.

Large concentrations of manufacturing enterprises are located in the well-known coastal export regions of the Pearl River Delta (Guangdong) and Yangtze River Delta (Shanghai and Jiangsu). But literally hundreds of towns and cities throughout China have declared themselves export zones. Local officials compete for investment. They benefit personally by extracting revenue from enterprises and workers. China has approximately 780 million peasants. Between 180 and 350 million are estimated to be "excessive" or in "dire poverty" and available for urban employment.

Ten to twenty million will enter the nonagricultural workforce each year during the next two decades. That is, *every year*, China will add more nonagricultural workers than the *total* manufacturing workforce of the United States. In the next three to five years, China will add more workers to its urban workforce than the total manufacturing workforce of the U.S., the E.U., and Japan combined....

p. 15

Equally important, workers are not allocated to China's factories by a competitive market. China enforces internal passport controls that create an enormous, submerged caste of exploitable factory workers who are temporary migrants from the countryside.

The Chinese system is not formally based on racial differences, but in practice migrant workers are distinguished by dialect and ethnicity; and the privileged class of permanent urban residents in fact treats migrant workers from the countryside as an ethnically inferior sub-caste. ...

p. 17

First, China's manufacturing workers are not permitted to organize independent unions to defend their basic rights and raise their wages. They are not permitted to strike. The full force of state terror - beatings, imprisonment, psychiatric internment, and torture -- is deployed against workers' attempts to exercise their right of association.

Second, the internal passport system denies migrant workers other basic civil and social rights in their temporary urban life, further suppressing their bargaining power and wages. Managers and local officials extract fees and deposits from newly arriving migrant workers and threaten them with even more severe penalties if they quit, enmeshing workers in a system of bonded labor. They are expelled and relocated to the countryside when they are no longer needed in the factory, when they are injured or sickened, or when they seek to assert their labor rights. Local officials in exporting areas compete for investment and, legally or corruptly, extract personal wealth from both state and private enterprises. Migrant workers therefore expect and get little legal protection or recourse from government officials.

Third, as already mentioned, migrant factory workers are denied access to better-paying skilled, technical, administrative, and managerial employment options in the permanent urban sector. They are frozen out of the better-paying urban labor market and overcrowded into the lower-paying rural and factory labor markets. If rural citizens were permitted to work in *any* urban job, not just in factories or construction sites, factory wages would rise - even if the relative wages of permanent urban citizens who now have privileged access to higher-paying jobs outside the factory system might fall.

Fourth, the "reservation wage" of migrant factory workers is set, in part, by the level of subsistence in the countryside. That is, in order to attract the rural unemployed to migrate into unskilled factory production, employers need only offer a wage that marginally exceeds rural subsistence levels plus transportation costs, not a wage that adequately compensates the workers' productivity. The degree of destitution in the Chinese countryside - and, therefore, the level of wages that must be offered by factories in order to lure migrant workers from the countryside -- is anything but "natural" or "pre-political." ...

p. 19

An urban *hukou* entitles one to public housing, health-care, and pensions -- all denied to holders of rural *hukou*. In the pre-reform era, "[t]he main enforcement mechanisms included the state control of agricultural production and procurement, the suppression of food-staple prices, and restrictions on rural-to-urban migration via a household registration system." In the post-reform era, the government continued to undertake "massive transfer[s]," by means of large-scale government investments in city infrastructure and social services to urban elites, paid for in part by an inflationary tax borne principally by the peasantry, and in part by urban subsidies channeled through the state-owned banking system, in which rural residents must deposit their savings.

On top of these nationwide policies, local officials support themselves by imposing crushing taxes on rural citizens, driving peasants into factory work:

The economics are simple, residents said. People in Xiaoshan eat most of what they grow, and by selling the rest they earn an average annual income of about \$25 each. But local officials demand about \$37 per person in taxes and fees. Several peasants who refused to pay last year were arrested. Migrant factory workers "remain confined within--the state's persisting imperative: to ally urban growth and productivity with cost-saving, and, as a 'socialist' state, to provide for the city dweller while preserving the ruralite as docile, disposable trespasser, and drudge."

In light of these various mechanisms for artificially suppressing workers' bargaining power, it is not surprising that Chinese factory workers live under conditions that neutral researchers (and Chinese officials themselves) describe as "bestial," "horrific," and "abominable." They are often beaten and physically humiliated by supervisors and private security guards. They are paid far less than the legal minimum wage, which is itself set far below the minimum wages of countries at a comparable level of development. Their wages are often arbitrarily withheld or unpaid altogether. Many work twelve to eighteen hour days, seven days a week, without a day of rest for months at a stretch. "Death by over-working" -- or *guolaosi* -- has become a commonly used term in contemporary China, and it is not used metaphorically. Most firms implement few health and safety measures, exposing workers to death not only by exhaustion but by toxins and machinery as well. China's rates of industrial death and lost limbs exceed any in history.

As a result, a startling number of workers take desperate, violent measures simply to draw attention to their plight - from blocking roads and railways to self-immolation. In contrast

with other developing countries, most Chinese migrant workers wish to return to the countryside rather than settle in the city - another sign of China's heightened exploitation of manufacturing workers. ...

p. 26

At the enterprise level, union officers are dominated by managers and local Party officials. Indeed, in both State-Owned Enterprises (SOEs) and Foreign-Invested Enterprises (FIEs), managers themselves typically serve jointly as ACFTU union officials - a startling indication of the subservience of the ACFTU to the Party's objective of management-led development. Where managers do not serve as union officers, managers nonetheless select union officers in agreement with local labor departments, which are tightly controlled by local Party officials. The enterprise pays the union officers' salaries. The enterprise also controls union finances. The government mandates that the enterprise forward 2 percent of its wage bill as union fees to the ACFTU, but enterprises often simply appropriate or fail to disburse that sum. ...

p. 27

In the late 1990s, it was evident that the ACFTU was failing as an instrument of workforce discipline. The number of illegal labor protests surpassed 200,000 in 1999 and reached nearly 270,000 in 2000. The Party has deployed two counter-strategies. First, it enacted the 2001 amendments to the Trade Union Law, quoted above, in an attempt to reaffirm and consolidate the ACFTU's mandate to impose managerial discipline. Second, the Party relies on brute violence and abuse of criminal process to quell worker protests and independent worker associations.

p. 29

In sum, factory workers in China are wholly denied the fundamental rights of association and collective bargaining, by law and practice. Either the monopolistic ACFTU is present in an enterprise, or there is no union at all. Where the ACFTU is present, its role is to discipline the workforce on behalf of Party policies, local development strategies, and investor goals, not to assert worker interests and rights. Strikes are illegal in China, and the ACFTU is charged with the task of suppressing them. While there may be dissidents within the ACFTU who are worthy of support, they are overwhelmed by the Party's stringent control. When workers protest or associate outside the constraints of the ACFTU, they enter a whirlwind of state terror, of torture, beatings, forced labor, and long-term imprisonment. The PRC unremittingly represses rights of association and strikes in all sectors of manufacturing - textiles, toys, leather goods, footwear, electronics, auto, motorcycle, petrochemicals, metallurgical, machinery, paper, printing, plastics, and all other sectors.

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The vast bulk of China's factory workers are temporary migrants holding rural *hukou*. The *hukou* system enmeshes factory workers in a system of bonded labor, a form of forced labor that violates Conventions 29 and 105 of the International Labor Organization and constitutes an unreasonable trade practice under section 301(d) of the Trade Act. This Section explains China's creation of a submerged caste of bonded factory workers.

Chinese citizens holding rural *hukou* who seek work in towns and cities without government permission are outlaws. But even when migrant workers obtain temporary residence cards and work permits in the towns and cities, they remain ineligible for basic

social services such as health care, public housing, food rations, and education for their children. They are subject to constant surveillance and control, and may at any time suffer arbitrary, summary expulsion by the Public Security forces.

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Local governments - relying on a 1982 law of the State Council, which authorized local governments to designate jobless migrants as “vagrants and beggars” - have placed jobless migrants in detention and forcibly “repatriated” them to their place of permanent residence. Local governments each year have held tens of thousands of migrant workers in “Custody and Repatriation Centers,” on the ostensible ground that they cannot show temporary residence and work certificates required in that jurisdiction. Local authorities force detainees in these Centers to work on public projects. Detainees are raped, beaten, and otherwise abused. Local officials require detainees to pay “ransoms” to gain release from custody. Once released, migrants are forcibly repatriated to their place of permanent registration.

Migrant workers live in terror of being arbitrarily detained and repatriated by local Public Security forces. On March 20, 2003, Sun Zhigang, a college-educated migrant from Hubei Province, was beaten to death in a detention center in Guangzhou. In response to domestic and international criticism, the State Council with much fanfare announced the repeal of the 1982 law on vagrants and beggars. The State Council immediately replaced that law, however, with a new decree for managing “indigent vagrants and beggars in cities.” The new decree changes the name of migrant detention centers -- from “Custody and Repatriation Centers” to “Aid Stations” -- but gives local officials authority that is nearly as broad as their authority under the 1982 law. (Tellingly, the central government also retaliated against the Guangzhou newspaper that reported Sun’s death.)...

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In July, 2003, the Ministry of Civil Affairs promulgated rules implementing the new State Council decree. The rules require “vagrants and beggars” to present the Aid Stations with “residency identification card or other proof of identity, place of household registration, and place of domicile.” The migrant is then required to comply with “the rules and regulations of the stations,” including any rules that local government may formulate regarding the jobless migrants’ “daily schedule” in the Aid Station. After contacting the Public Security Department of the migrant’s place of permanent registration, the Aid Station must transport the migrant to that place, at the migrant’s expense if she has sufficient funds. ...

p. 37

Workers arriving from the countryside must pay substantial fees to local government officials and to employers in order to obtain residence and work permits required by the *hukou* system. Some of these payments are mandated by central and local law; some are “extra-legal” exactions by corrupt local officials and managers. As described above, the required fees and certificates vary widely from locality to locality, and are administered by local officials with almost complete discretion. Workers routinely go into debt in order to make these various up-front payments.

“[M]igrant workers are cash cows for local bureaucracies.” In Shenzhen, for example, 70 percent of local government revenue is drawn from migrant workers. Workers therefore face a bewildering array of certification requirements, and fees that are crushing. For example, one migrant to Shenzhen in 2001 needed to obtain the following documents, each of which required payment of a substantial fee: A border region pass, a personal identity card, an

unmarried status certificate, a certificate to prove birth within China's one-child policy, a work permit, and a temporary residence permit. On top of these, the migrant to Shenzhen was required to pay a bond or "deposit" to the employer. These deposits are as much as 4000 Yuan, exceeding one year's wages. Some local governments require enterprises to pay "new-hire" fees, but managers pass those fees on to new workers as well. These investments often exceed the migrant's life saving. To pay for them, migrants incur substantial debt, often payable to their own employer. As in classic bonded labor, a workers' up-front deposit will be lost and her debts will be in default, if the worker attempts to exit the employment relation. ...

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New migrants' feverish effort to find jobs in order to avoid expulsion from urban areas, and their submission to employers' terms no matter how unfair, is a common sight in contemporary China. "New arrivals—, desperate to recoup the amount they have invested in transport expenses and in applying for the array of necessary documents and certificates before leaving home, will take any job available." ...

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Government policy -- the *hukou* system, and the plethora of government controls on temporary migrant workers in the manufacturing sector -- creates an enormous submerged caste of unskilled factory workers. Migrant workers effectively live in a Hobbesian state of anarchy, in which they are subject to intimidation, fraud, and violence, without recourse to protection by police or courts. Indeed, as already described, the Public Security police are themselves often the perpetrators of fraud, violence, and arbitrary exactions against migrants. Hence, if workers are abused by employers, their only recourse is to escape the workplace, or to engage in desperate acts of protest - blocking roads and railways, threatening suicide, even self-immolation. ...

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The wages and hours of China's factory workers are effectively unprotected by legal regulation or by contract. Migrant workers are paid extremely low monthly sums - from 200 to 600 Rmb (approximately \$24 to \$72) -- in return for working as many hours as employers can extract from them.* They often work twelve to eighteen hours per day, with no days off

* Economists and other social scientists widely recognize that reliable large-sample data on Chinese economic and social life are extraordinarily difficult to obtain - precisely because China is an authoritarian, closed society. Much academic research on China must therefore rely on "ethnographic" descriptions, newspaper stories, and other anecdotal reports. China's official wage data are inaccurate, because they rely on employers' reports of wages paid. Wage data provided by employers are utterly unreliable. As detailed in this Section, employers routinely report that they are paying minimum wages, when they in fact are paying much less. Employers routinely keep two or more sets of books for just this purpose. For this reason, the hourly and monthly wages publicly reported by Western multinationals that out-source their production to China are generally overstated. See, e.g., Professor Mark Barenberg, Interviews with Asia Compliance Officers of Multinational Brands and Agents in Toys, Apparel, Footwear, and Retail, Hong Kong and Bangkok (May- June 2002). The most reliable wage data are obtained by researchers who painstakingly

for months at a time. They are rarely paid full overtime wages, and sometimes are not paid at all.

Non-payment of wages is pervasive. According to a government survey, three out of four workers are unable to collect their pay as promised. An independent researcher found that “the illegal retention of workers’ wages for between one and three months exists in 80 percent of foreign-financed firms” in Dongguan. A majority of workers must resort to begging or intimidating their employers simply to get paid. As a consequence, the wages actually collected by workers are well below the amount negotiated at the start of their employment. This results not from enterprises’ financial difficulty but rather from employers’ “deliberate malpractice,” permitted by the negligible bargaining power of China’s bonded workers. Factory workers fear that they will be discharged and lose their deposit “if they pursue their wages.”

Hourly wages and unit labor costs are therefore greatly suppressed. Manufacturing wages for female workers range as low as 12 cents to 30 cents per hour. Male workers earn approximately 10 or 15 percent more. Many credible researchers agree that the wages of China’s factory workers have remained flat or fallen in the last decade, even as productivity has risen steadily. ...

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The overtime wage rate is seldom paid. Employers give workers misleading explanations of how their compensation is calculated and provide false wage and hour records, if any records are provided at all. As explained in the previous section, a large majority of China’s export workers are young, single migrants who live in dormitories within the fences of company compounds - a simulacrum of the old Communist “work units.” (Between six and twenty workers sleep together in the bunk beds of a single, small room measuring 8 to 20 square meters.) Workers are therefore under the surveillance of company security personnel not only on the factory floor but also in their place of residence. Many factories cross the line from surveillance to imprisonment. Workers are permitted to leave the factory compound only for brief periods each week, or, in some instances, not at all. In these circumstances, workers are captives of companies’ private security forces around the clock. They are therefore virtually helpless to resist employers’ demand that they work limitless overtime hours. Employers use an array of methods to reduce hourly compensation:

- Employers require workers to work overtime hours far in excess of official standards, at reduced hourly wage rates or with no compensation at all, on the ground that production quotas have not been met or some other pretext.

- Employers make many deductions from the basic wage: up-front deposits; withheld wages; fees for work and residence permits ostensibly purchased by the firm but often never received by workers; exorbitant dormitory and meal fees; fees for factory IDs, handbooks, and equipment; payments to company stores within company compounds, from which

interview workers in order to reconstruct wages received, deductions from wages, regular and overtime hours worked, and production for piece-rates and quotas. This is painstaking, precisely because workers are often unsure about the employers’ methods for calculating wages, and employers often wish to keep it that way. Workers are often paid months or even a year after the wages are earned, making it even more difficult for workers to prove the overtime hours or piece-work they accrued.

workers' free exit is often severely restricted; and penalties for missing production targets, for taking more than five minutes to use toilets, for missing work due to illness, for talking or laughing during work hours, during noon break, or during sleep time, for not marching in unison to and from work stations, for not making one's dormitory bed, for not staying in one's bed when lights are out, for drawing a curtain for privacy around one's dormitory bed, and for other infractions of militaristic rules.

- Employers require workers to arrive at workstations one hour early for "preparation" and stay late for "cleanup" with no additional pay.

- Employers simply fail to pay workers their wages at all, ostensibly because the firm is financially strapped, but in fact because they can do so with impunity and workers lack the information, bargaining power, or legal recourse to challenge the managers' claim about company finances.

- Employers keep double, triple, or even quadruple sets of books - one for the formal record-keeping of local Labor Bureaus; another for the "social compliance" auditors of multinational corporations that have adopted labor codes; another for misrepresenting to workers the compensable hours they've worked; and another for the actual wages paid and hours worked.

- Employers fail to enter into written contracts with workers, disabling workers from asserting any legal entitlement to payment of verbally agreed-upon wages. The upshot of these practices is that workers are routinely paid a monthly wage not only far below the legal minimum, but below the agreed-upon wage as well. Further, the actual monthly wage paid is only related loosely, if at all, to the actual number of hours they work each month. Many workers are effectively "salaried" workers who come to expect a monthly or yearly sum - very low and paid erratically -- for working as many hours as employers demand, without limit. Many others work at piece rates that yield equally low monthly or yearly wages and, therefore, equally low hourly wages. ...

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China's failure to enforce occupational safety and health standards violates International Labor Organization Conventions 119, 136, 139, 148, 155, and 170 and constitutes an unreasonable trade practice under Section 301(d) of the Trade Act. 220 According to conservative reports, workplace accidents killed 140,000 workers in China last year. At least 80 percent of workplace deaths occur among the migrant workers in the export sector. Another 250,000 reportedly lost fingers, hands, feet, arms, legs, and suffered other injuries -- in the absence of protective machine guards and other safety devices that are routinely used elsewhere in global industry. In the view of independent experts in occupational safety and health (OSH), the actual industrial carnage in China may be several times as high as these estimates. ...

A. UNPRECEDENTED JOB LOSS IN U.S. MANUFACTURING

The manufacturing sector in the United States has lost jobs for 43 straight months. Since January 2001, the U.S. economy has lost 2,931,000 private sector jobs.* The manufacturing

* Most data in this paragraph are from the Bureau of Labor Statistics and MGB Information Services. For more detail see the full report.

sector has lost 2,790,000 jobs. That is, even though manufacturing accounted for 13 percent of U.S. employment in January 2001, it accounts for 95 percent of the jobs lost in the 36 months since then. This is not a cyclical phenomenon explained by the economy-wide recession that ended in November 2001. Even during the economic “recovery” of the last 27 months, 1,361,000 manufacturing workers lost their jobs, and manufacturing hours declined 7.7 percent. In the last 12 months, the real hourly and weekly wages of U.S. rank-and-file employees fell. The ordeal of U.S. manufacturing workers continues amidst the most expansionary monetary and fiscal policies in memory -- near zero interest rates and record budget deficits. In the last three months of the “recovery” -- December 2003 through February 2004 -- another 40,000 manufacturing jobs were lost.

In the first 27 months of recoveries in the past, total employment increased by an average of approximately 6 percent. If the current recovery had followed this trend, the economy would have gained 7.85 million jobs since November 2001, rather than extinguishing nearly three million jobs.

These numbers, as stunning as they are, represent only *net* decreases in employment. They do not include the workers who have been discharged in the manufacturing sector and suffered the high costs of unemployment and transition to new manufacturing jobs. Workers can be discharged in small numbers or in “mass layoffs” of 50 or more employees. There were 39,240 mass layoffs reported in 2002 and 2003, affecting 4,133,977 jobs. Thirty-nine percent of those workers were in manufacturing even though, as mentioned above, manufacturing accounts for less than 13 percent of the nation’s workforce.

The data on job loss by manufacturing sector are also staggering. Employment in textile mills fell from 480,400 to 241,300 between 1994 and 2004. Jobs in apparel fell from 853,800 to 295,700 during the same period. In the textile and apparel sectors overall, employment fell by 54.4 percent, with a total job loss of 846,700 during the nine years since December, 1994. In aerospace products and parts, employment fell by 47.8 percent since 1990, with a loss of 536,700 jobs.

In the last three years alone, employment in the computer and electronic products sector has dropped by 538,000 workers or 28.8 percent; employment in electrical equipment and appliances has fallen by 133,000 or 22.8 percent; in machinery 312,000 or 21.6 percent; in fabricated metal products 282,000 or 16 percent; in primary metals 146,000 or 24 percent; in transportation equipment 212,000 or 10.7 percent; in furniture products 103,000 or 15.2 percent; in textile mills 124,000 or 34.1 percent; in apparel 175,000 or 37.3 percent; in leather products 89,000 or 14.9 percent; in printing 128,000 or 16.1 percent; in paper products 89,000 or 14.9 percent; in plastics and rubber products 13.8 percent. In the furniture sector, in just two years (from 2000 to 2002) U.S. manufacturers lost 11.5 percent of market share to China. ...

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Employment data for specific manufacturing occupations are available only through 2002 and therefore do not reflect the continued hemorrhaging of manufacturing jobs through 2003. The data through 2002 are grim enough. In just three years – from fourth-quarter 1999 to fourth-quarter 2002, one full year into the economy recovery – the number of electronics assemblers in the U.S. fell from 457,260 to 324,530.** The number of textile machine

** The data in this paragraph are from the Bureau of Labor Statistics, National Employment and Wage Data from the Occupational Employment Statistics Survey by Occupation, 1999 and 2002. Some of the occupational categories are combined in the text, for ease of exposition.

operators dropped from 247,120 to 181,130, and the number of sewing machine operators fell from 403,770 to 277,800. Employment of engine assemblers fell from 85,570 to 49,280; computer-controlled machine tool operators from 168,170 to 128,400; tool and die makers from 132,350 to 105,210; welders from 478,720 to 418,250; cutting and press machine operators from 353,300 to 277,410; extruding machine operators in metals, plastics, chemicals, and textiles from 218,480 to 194,390; woodworking machine operators and furniture finishers from 141,690 to 120,070; inspectors, testers, sorters, samplers, and weighers from 577,650 to 500,250; general assemblers from 1,302,820 to 1,139,360; packagers and packers from 1,114,330 to 927,740; production helpers from 584,060 to 464,390; and production supervisors from 760,050 to 700,490.

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10. Idem.
11. "Pentagon's Request for Iraq Includes Money for Troops and Rewards", *New York Times*, October 5, 2003.
12. S. Melman, *Pentagon Capitalism*, (McGraw-Hill, 1970), Chapter 6, in *Permanent War Economy*, p. 170.
13. In February 1973 we learned of the resurgence of guerrilla operations in the Philippines. *The New York Times* (March 26, 1973) reported: "The military situation bears a striking resemblance to the early day of Vietnam. The guerrillas roam freely through the countryside, with support from local villagers, and with a vast intelligence network connected by runners and walkie-talkies. The army, a replica of the United States military forces, and with all American equipment, uses conventional tactics."
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15. S. Melman, *Pentagon Capitalism* (McGraw-Hill, 1970) p. 142.
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THREE

1. Since 1986, I have been a fairly close observer of departure of industrial firms and facilities from the United States to foreign locations. While I can't say how many such events I took note of, I am fairly sure of one characteristic: in no single case did the proprietors of an industrial enterprise claim that they were making the move outside the United States, that is, "outsourcing" in order to save the profitability of their enterprise. In every instance that came to my attention the management indicated that the removal from the U.S. to a foreign location was to serve the goal of greater profitability. I underscore this consideration because during the last two years I have watched numerous processes of deindustrialization in the United States – and as reported in the trade and general press – and in no single instance was there a claim that the move was done in the service of retaining profitability. In every instance it was announced as serving the cause of greater profitability and capital accumulation.

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From these two sets of data, it is possible to calculate the percent of the U.S. market served by imports. Shipments data for *Apparel* and *Leather* from U.S. Census, Manufacturing,

Mining and Construction Statistics, "NAICS Historic Timeseries", Shipments Table: www.census.gov/indicator/www/m3/hist/naicshist.htm . NAICS Codes for: Machine Tools (Cutting): 333512; Machine Tools (Forming): 333513; Automobiles: 336111; Iron & Steel: 331111; Farm Machinery: 333111; Construction Machinery: 333120; Mining Machinery: 333131; Oil & Gas Machinery: 333132; Textile Machinery: 333292; Semiconductor Machinery: 333295; Office Machinery: 333313; Computers & Peripherals: 334111, 334112, 334119; Broadcasting & Wireless: 334220; Audio & Video: 334310; Semiconductors: 334413; Electromedical Apparatus: 334510; Apparel: 315; Leather Goods: 316.

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APPENDIX A: NATIONAL EMPLOYMENT AND INCOME EFFECTS FROM A SHIFT IN FEDERAL PRIORITIES

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